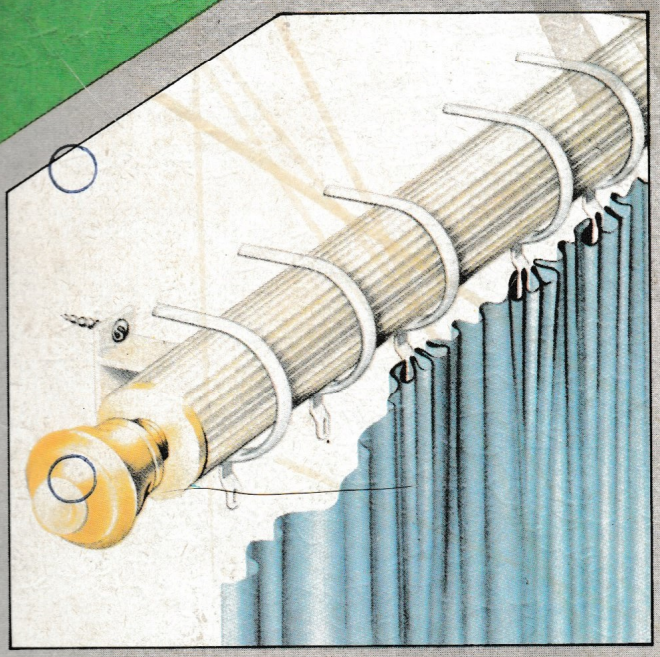
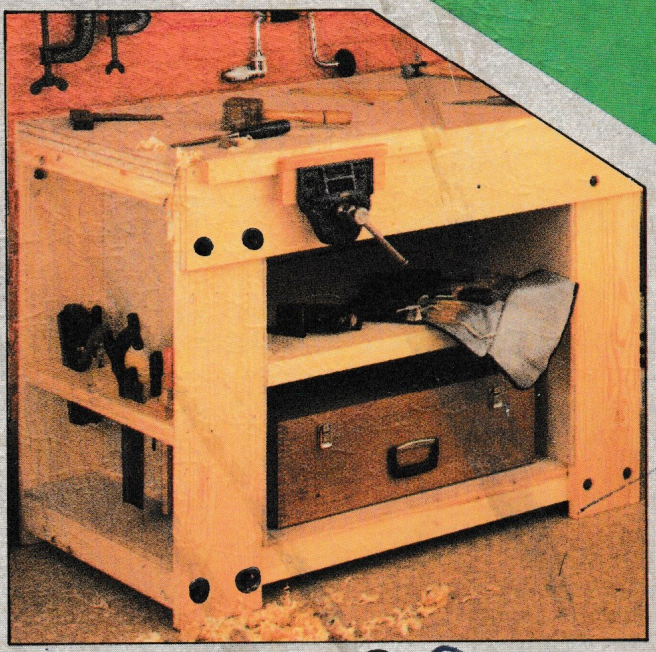
A Marshall Cavendish Publication in weekly parts

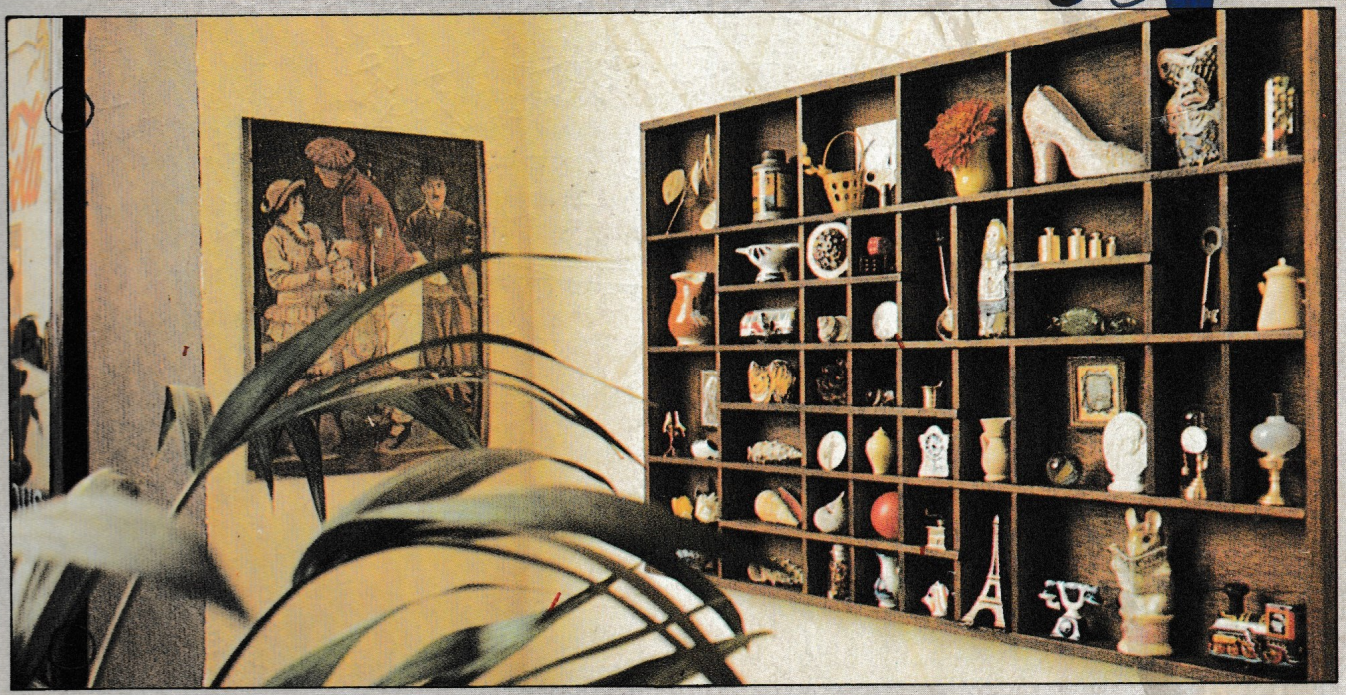
Part 11

THE KNACK

The complete manual of DIY skills, projects and home ideas







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THE KNACK

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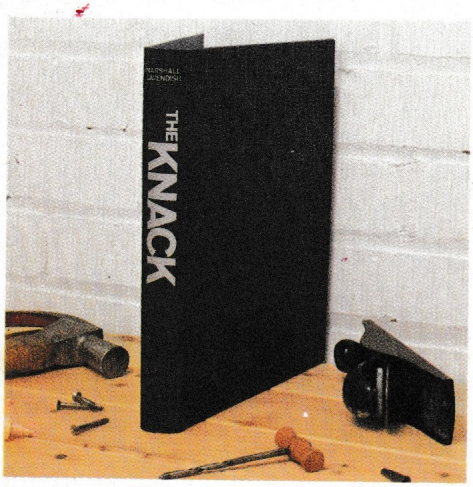

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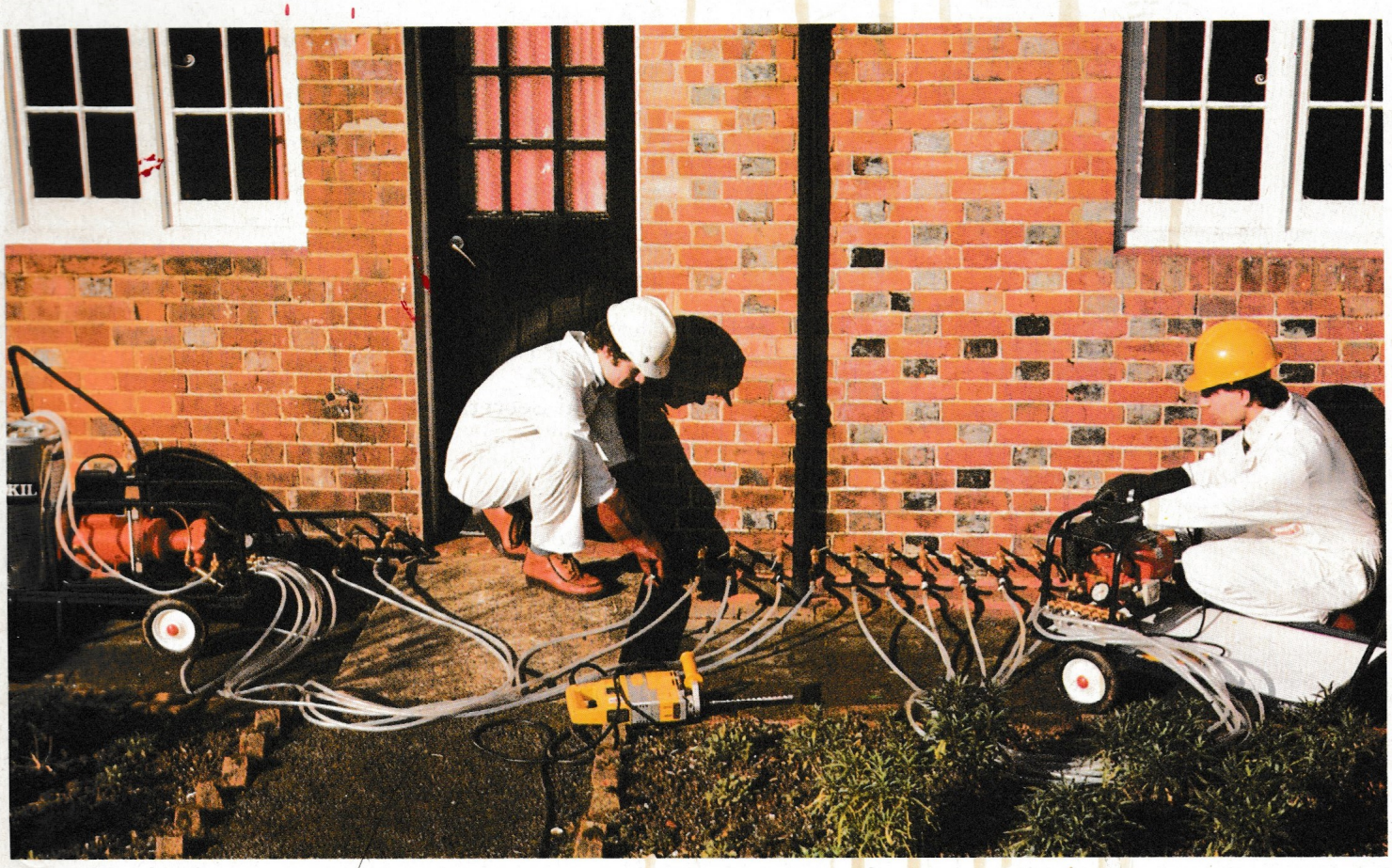
Dealing with damp



Photographs courtesy of Rentokil

Damp should never be ignored. If it is, the whole house is put at risk from structural damage. The longer damp is left unchecked, the greater is the risk and the expense

Above: *The injection of silicone under pressure into pre-drilled holes is the most common form of damp-proofing—it is only carried out by experts. An impervious membrane is created around the house*

Damp is a danger sign for which you should always be on the lookout. If not controlled at an early stage, the damp can cause structural damage to the whole house. And by penetrating the porous brickwork and internal plaster, it puts even the furnishings and fittings inside the house at risk.

The causes and treatment of each kind of damp are different, so it is important to check exactly what type of damp you have before deciding on a course of action. Get professional advice if you are unsure.

Recognising the signs

Condensation is by far the most common type of damp and it is fairly obvious when this is affecting a room. The windows tend to steam up easily and water runs down the walls—badly staining the paint and wall coverings. The more steam there is in a room, the more likely it is to be affected by condensation damage. Bathrooms and kitchens, therefore, are particularly vulnerable but so too are bedrooms. Here, the warm, damp air which causes condensation comes from those sleeping in the room.

Continuous moisture on a wall could soon result in the whole surface becoming damp.

Superficially, condensation quickly provides the ideal breeding ground for unsightly moulds—a sure sign that the internal plaster has become saturated (see over).

If a room is not troubled by condensation but you still suspect damp is present, it is likely to be either rising or penetrating damp.

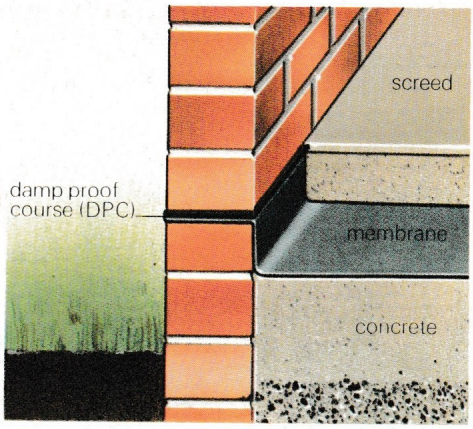
Penetrating damp is usually caused by something as simple as a leaking or blocked gutter. When penetrating damp is present in a room, therefore, the affected wall is usually stained fairly high up. If the problem is very bad, the paint or paper flakes or peels from the wall.

This is also the case with rising damp, except that the damp is likely to be much nearer the floor level. There may also be a general, unpleasant chill and smell to the damp wall or room.

Treatment of condensation

Condensation occurs when insulation and ventilation are both inadequate. There is always a certain amount of water vapour in the air, and the warmer a house gets, the more water vapour the air can hold. However, as soon as the air reaches saturation point, or the temperature drops—such as on cold, poorly insulated walls—the excess water vapour reverts to its liquid state. This is condensation.

Above: *Uncontrolled condensation has provided the ideal conditions for this wall to be penetrated with damp and for the growth of moulds*



John Ward

A. *Porous concrete floors must be covered with a waterproof film which joins up with the DPC so that damp does not rise up to the walls*

One of the worst causes of condensation is from the vapour given off by portable paraffin heaters.

Good ventilation—in the form of ventilation bricks, window vents and extractor fans—eases the problem to a certain extent by introducing drier air to the room and removing the moist air. Bear in mind that extractor fans work best when positioned high up. In bathrooms and kitchens, the fan should be as near to the source of the steam as possible but well away from windows which are usually left open.

The best way of controlling condensation is to insulate the external walls so that they retain heat. Walls at a temperature close to that of the room do not so readily produce condensation. An ideal situation is to have a constant air temperature, though there is not much point in having the heating system on 24 hours a day if the house is not properly insulated.

Humid conditions—high temperature, damp atmosphere—increase the amount of condensation on cooler surfaces such as walls and windows. But if the walls are properly insulated and there is an extractor fan in the window, this too can be controlled.

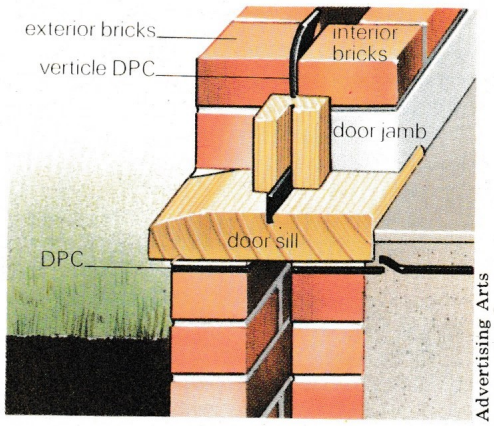
Take simple steps such as opening the window—in the summer at least—before running the bath water, or cooking, to reduce the amount of harmful moisture on the walls. When running a bath during the colder months, cold water run for a minute before adding the hot water will considerably reduce the amount of steam—and therefore condensation.

Rising damp

The most common cause of rising damp is the absence, or breaking down, of the damp proof course (DPC). The DPC is a layer of impervious material inserted between courses of brickwork on all the walls of a structure at a minimum of 150mm above ground level.

Without a DPC, or where one has broken down, water rises up from the ground and is absorbed by the porous brickwork. A porous concrete floor within the building also allows moisture to pass through it and up the walls. In this case a damp-proof membrane should be placed over the complete surface of the concrete and below the final screed so that a continuous, waterproof film is formed up to the DPC in the walls (fig. A).

Any house built in the UK after 1910 should already have a DPC inserted. Houses built prior to this should be checked to see if one is in place. Some older houses have DPC's made from Staffordshire blue engineering bricks, which are extremely dense and thus impervious to moisture. But for a DPC of this kind to be effective, there must be at least two—preferably three—courses of the bricks. Fractured Staffordshire blue bricks must be cut out and replaced with new ones, bedded in a mortar of one part Portland cement to three of sand.



Advertising Arts

B. *To prevent penetrating damp around doors and windows in cavity walls, a vertical DPC must be fitted so that the cavity cannot be bridged*

Earth or debris piled up against the side of a house which covers the DPC is a common cause of rising damp because it allows moisture to bridge across the DPC.

Removing the offending materials will usually cure the problem if caught early enough. But where the damp has been allowed to spread, some of the bricks and mortar above the DPC may have to be replaced together with the internal plasterwork.

'Bridging' can also occur when excess mortar has been carelessly dropped between the leaves of a cavity wall during building. The deposits often build up to the point where they rise above the DPC. In this case, the cure is to remove bricks from the outer leaf of the affected wall and chip away the deposits taking care not to damage the existing DPC. New bricks should be replaced using a 1:4 cement and building sand mix.

Where external rendering extends down to ground level and has become porous or hollow ('blown') through old age, damp can bypass the DPC completely. Here, the affected rendering must be removed to at least one course of brickwork above the DPC.

A common cause of rising damp in older houses with suspended floors (see pages 182-187) is the blocking up of air bricks. These should be kept clear of debris at all times so that moisture-laden air beneath the floor has a chance to escape.

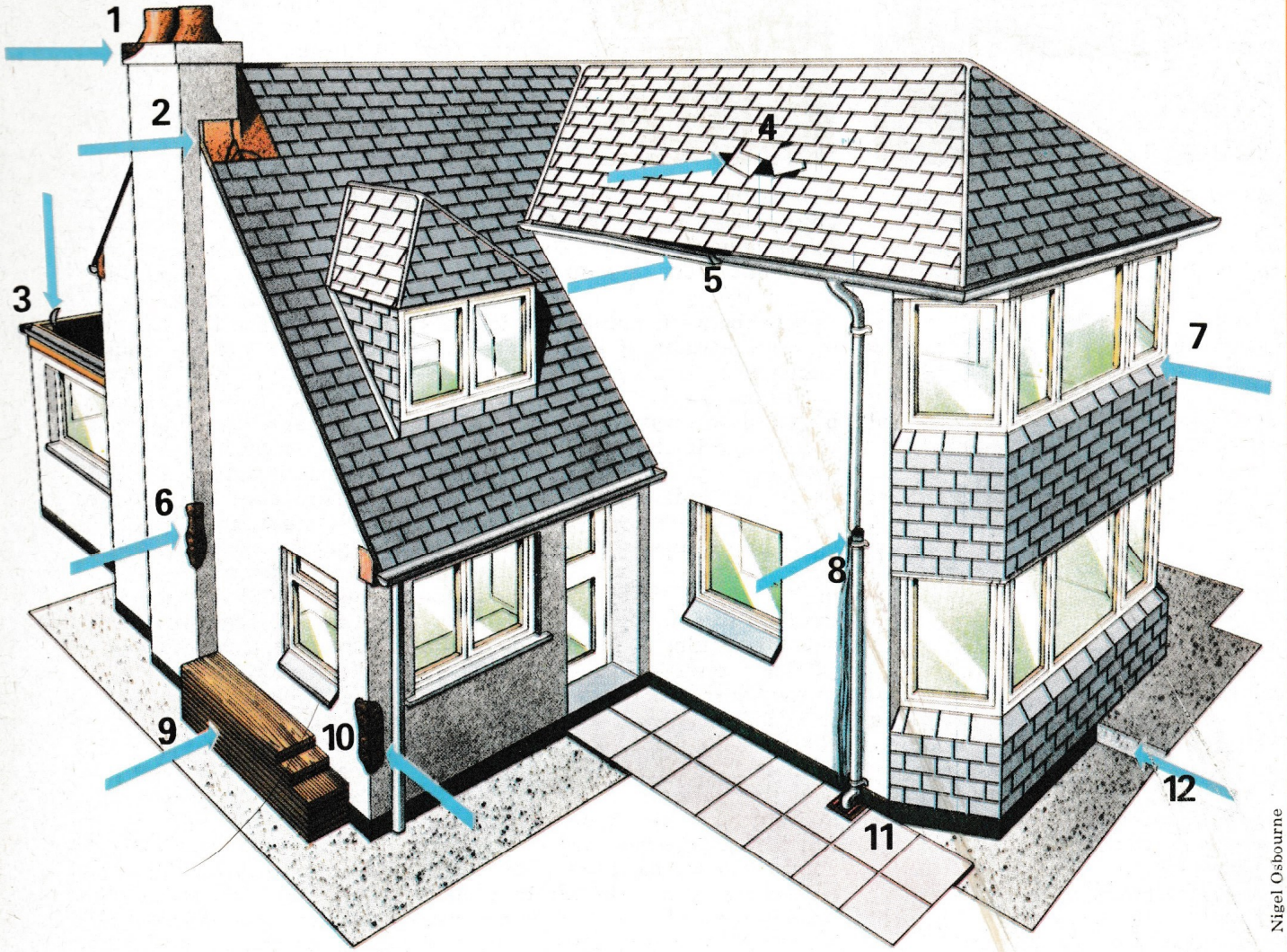
An adjoining wall—such as that on a lean-to—which either has a DPC at a higher level or none at all, will allow moisture to rise above the DPC in the main structure. This problem can be corrected by inserting a vertical DPC to bridge the gap (fig. B).

Types of DPC

Inserting a DPC is a costly and difficult procedure which is usually best left to a professional contractor. Also, the professionals give a 20 year guarantee—a plus point when you come to sell the house. Unfortunately, the job is now considered essential in houses where no DPC is fitted or where the existing one has broken down beyond repair. There are several methods from which to choose but only one of these is within the scope of the handyman.

Silicone injection: This method is popular with both professionals and DIY enthusiasts alike because it involves no cutting of brickwork and

Damp: the trouble spots



Nigel Osbourne

1 If the sloped covering around a chimney stack cracks, water can penetrate the brickwork

2 The join between the roof and the chimney is vulnerable—check the flashing regularly

3 Damaged roofing felt on a flat roof allows damp in and causes the roof timbers to rot

4 The ceiling beneath loose or missing roof tiles quickly becomes saturated with water

5 Broken guttering is the most common cause of penetrating damp at the top of internal walls

6 Rendering should not be allowed to decay, or damp will penetrate and spread through the walls

7 Check that the window frames have not cracked, leaving a gap between the brickwork for damp to get in

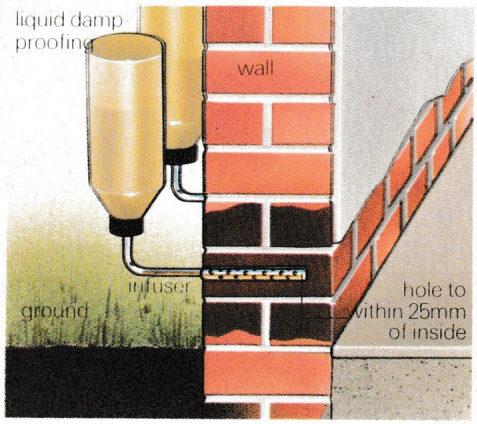
8 A broken downpipe allows a lot of water to pour down onto the wall, quickly breaking it down

9 Timber and other objects should not be piled up against the house as they bridge the DPC

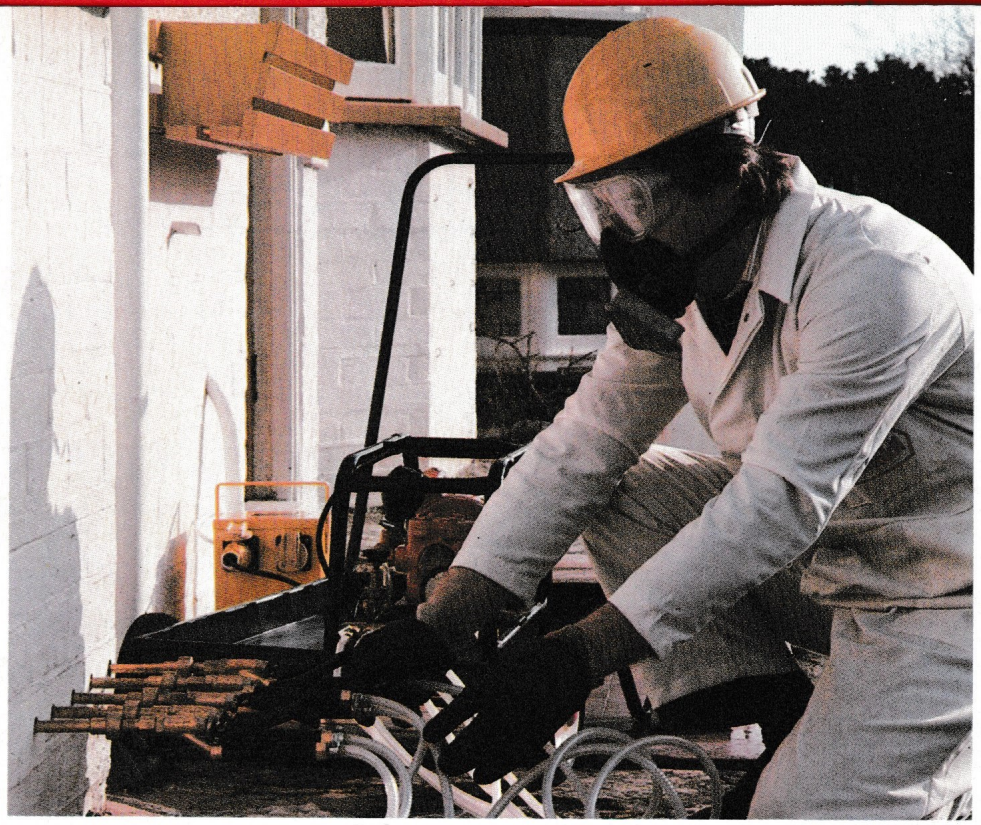
10 Water can break down the mortar joints of brickwork, making the inside walls damp

11 A blocked downpipe or drain can cause the gutters to overflow and pour water onto porous walls

12 Make sure that paths are not built higher than the DPC or they will act as a bridge for damp



C. *Silicone is available in bottles for use by the amateur. These are allowed to empty slowly into pre-drilled holes—inside or outside*



Right: *The professionals drill more holes and the silicone is injected through five nozzles at a time.*

can be done from either inside or outside the house—the latter approach being more commonly used.

The first stage is to drill holes in all the walls, about 220mm apart and at least 150mm above ground level. Next, silicone—a water-resistant liquid—is forced into the holes and allowed to soak through the brickwork (fig. C).

Professional contractors introduce the silicone under high pressure, using sophisticated injection equipment. For the amateur, the silicone is poured into the holes from refillable 570ml bottles. These are left to empty into the holes, after which time a continuous, impervious layer should have been formed.

Electro-osmosis: This is a system of damp proofing carried out only by specialist companies. It is generally used where the drilling or cutting out of bricks is either difficult or impossible—as with extremely thick walls.

Electro-osmosis involves setting copper rods into the earth which are then connected to a ribbon of copper in the walls. When positioned properly the ribbon and rods create an area of low resistance between the earth and the walls above which moisture cannot rise. The naturally formed electricity discharges to earth.

Cutting out: Removing brickwork to insert a layer of damp-proof material is a lengthy, highly-skilled job which even the professionals are often reluctant to tackle. In any case, it is only feasible on houses where the brickwork is in good condition. If the overall structure is shaky, inserting a DPC in this way may literally bring the house down.

The brickwork is cut away in alternate 900mm sections with the aid of a hand masonry saw, power saw or grinding disc, using wood battens to counteract any crumbling of the structure above.

Afterwards, the chosen DPC material is inserted, set in mortar and the brickwork replaced. The intervening sections can then be completed in the same way to form a continuous DPC along the wall.

Slate is the traditional DPC material used in this way. The slate sections—which must be at least 230mm long—are set into the mortar in overlapping layers to form a continuous seal.

More recently, easier-to-handle sheet materials have come in to use. These include lead-cored bitumen felt, fibrous asphalt felt, sheet copper, sheet lead, sheet zinc and bituminized polythene. These are all laid in 675mm or 900mm strips, then set in to mortar (specifically lime mortar in the case of lead sheet).

Adjoining strips are either overlapped—by at least 100mm—or welded by folding the ends over each other.

Bear in mind that inserting a DPC does not get rid of rising damp problems immediately. The brickwork should be left to dry out for several months before you redecorate or make any internal repairs.

Penetrating damp

This kind of damp is usually caused by a fault higher up in the house than a defective DPC. Leaking roofs, gutters and downpipes, which allow a large amount of water to flow down a small section of wall, are common causes of penetrating damp. They should be quickly repaired, together with any damage to brickwork or pointing which may have occured.

A heavy growth of lichen, moss or clinging plants such as ivy can also provide an ideal inlet for moisture. These should be scraped from the wall

and the wall then sprayed with a chemical fungicide.

Bad pointing and *spalded*—broken down and flakey—brickwork are common causes of penetrating damp. Check all exterior mortar joints and bricks for crumbling, holes and gaps before you decide on any further course of action against the damp.

If care was not taken during the building of a cavity wall to keep it free of obstructions—such as lumps of porous mortar on wall ties—moisture can bridge the DPC and cause damp to penetrate the inner wall. Some brickwork will have to be removed from the damp area to clean off the encrusted wall tie.

Treating penetrating damp

If you are certain that the penetrating damp is not caused by any of the above faults it may be that moisture is simply seeping through the walls. Where this is the case, there are several ways of making the exterior walls more impervious.

Cladding the walls with tiles or slates and rendering or painting the outside of the house are methods which are not always popular or practical because they alter the exterior look.

Photographs courtesy of Rentokil

Above: *The Discovac method—a slot is cut in the wall and a polythene membrane inserted. An extraction unit eliminates the dust problem.* **Below:** *In Electro-osmosis a continuous strip of high-conductivity copper is inserted*

Spraying the outside of the house with a chemical water repellent is a less drastic and often just as effective solution. The liquid is available from most DIY stores and should be sprayed on with a pressurized pneumatic sprayer, such as that used for garden insecticides.

Before spraying, the walls should be as clean and dry as possible. All mortar joints must be in good condition and any structural cracks filled in. Fresh mortar should be allowed to dry for at least six weeks before spraying over it.

Although the liquid is easily wiped off most other surfaces, it is advisable to mask windows and doors. Bitumen materials used for DPC's, roofing and so on should also be covered as the chemicals may react with it and cause staining on the brickwork below.

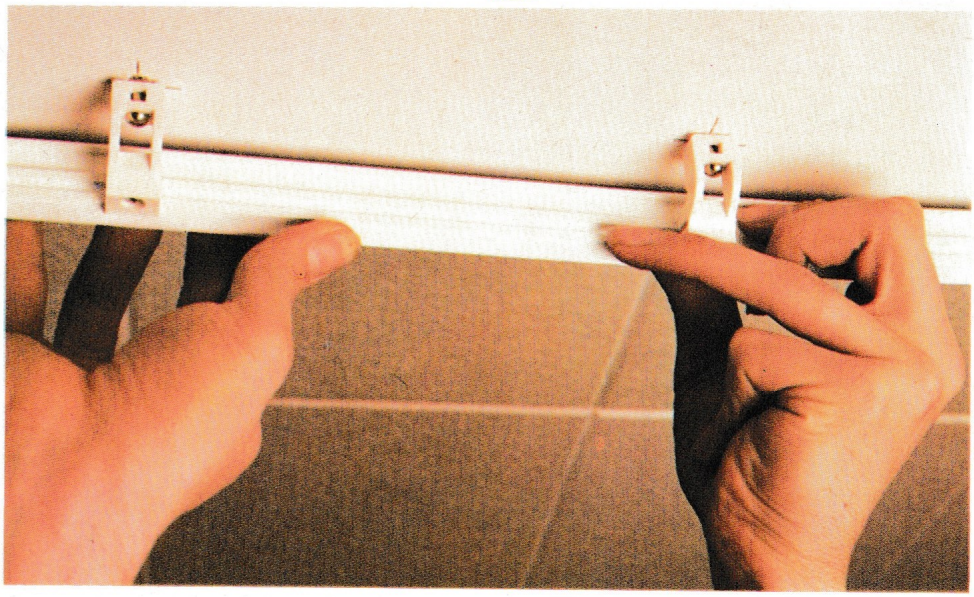
Internal repairs

A severe case of either rising or penetrating damp will leave you with mouldy, crumbling plaster and peeling paint or wallpaper. This cannot be repaired until the cause of the damp has been put right and the external brickwork left to dry out.

Damp-affected plaster and render must be hacked away to at least 1.5m above DPC level or, where applicable, to about 500mm past the visibly affected areas. The mortar joints in the exposed brickwork should then be raked out, to a depth of about 13mm.

Before you re-render—using one part Portland cement to three of sand—the brickwork should be thoroughly dry and brushed clean so that the rendering has a good holding surface.

How to hang curtains



Left: *Make sure you secure any ceiling brackets to a joist. Plasterboard will not support the curtains*

Types of curtain track ● Hooks and runners ● Curtain poles ● Pelmets and valances ● Draw cord assemblies ● Fitting track to a wall or ceiling ● Hanging curtains

When selecting track for hanging a curtain, your choice is best governed by a combination of personal taste and practical considerations.

Purely functional track, in which the runners are visible, is often considered ugly and usually hidden behind a pelmet or a heading of gathered fabric called a *valance*. This type of track was a standard fixture in the home for many years, but nowadays you can buy curtain track with runners that are concealed inside or behind a plain or decorative strip.

Alternatively, you may choose to hang a curtain in the traditional method from a pole. Modern curtain poles are made in brass, aluminium or wood with a variety of decorative end pieces and you can even buy mock curtain poles—in plastic or metal—which have concealed runners.

Types of track

The kind of track you choose depends to a large extent on the shape of the window and the type of fixing surface.

If the window is straight, almost any type will do. On bay windows, consisting of a number of angled sections, you can fix a separate, straight run of track for each section.

A more satisfactory answer is to buy plastic rail (fig. B). This is flexible and can be bent to the desired shape, though care should be taken to bend it into gentle curves or the curtain will not run smoothly. Although it is lightweight, plastic track is strong and can usually take the weight of a heavy curtain. Particularly heavy fabric—such as thick velvet—may have to be hung from track that is custom-made to fit the shape of your window and this can be expensive.

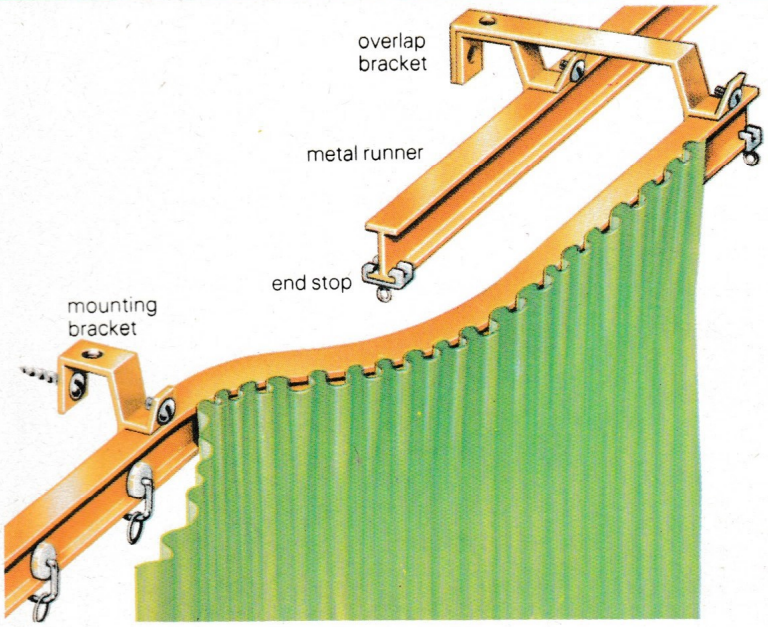
If you decide to hide the track behind a pelmet or valance, you can fit inexpensive, standard I-section rail in bare or plastic-covered metal. The disadvantage of the bare metal rail (fig. A) common in many older homes, is that it collects dirt and dust which can prevent its double-wheeled runners from sliding smoothly.

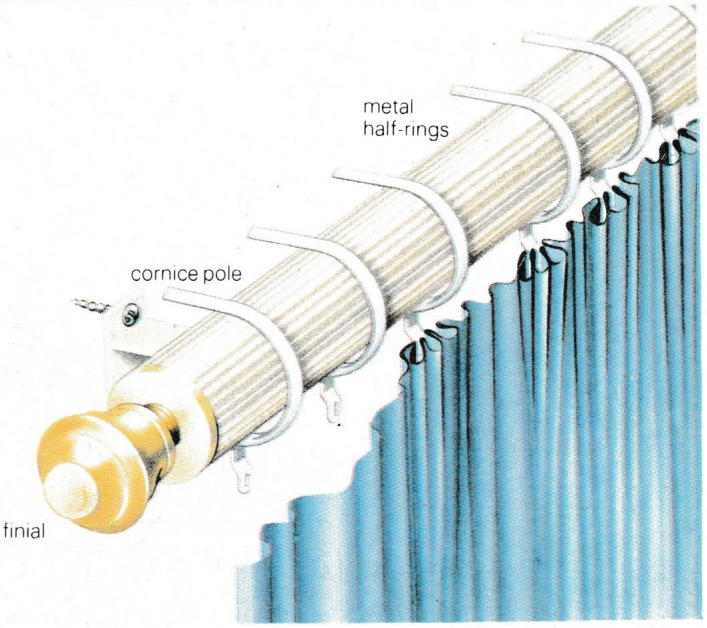
The plastic-covered type of rail is corrosion-proof and, because it has one-piece sliders instead of wheeled runners, glides smoothly and silently. For fitting a valance, you can buy

1 *When fitting curtain track to the wall above a window, mark out the positions for the mounting brackets, then drill the screw holes*

2 *Screw the brackets into place on the wall and make sure that each one is quite secure. If any brackets are loose, fit longer screws*

3 *When all the brackets are secure, clip the length of curtain track into position in each bracket along the track run*





Venner Artists

A. Above, left: *Metal, I-section rail incorporating a curved overlap helps to join curtains neatly*
Above: *A modern cornice pole is easy to fit, and looks attractive. The curtains run on simple metal rings*

nylon brackets which clip on to the fixing brackets of the track. These project over the front of the track and hold a valance rail, to which the material is attached.

If you are hanging a pair of curtains with I-section rail and you want them to overlap where they meet, you need two sections of track—one straight piece and one with an angled end. The angled section is fixed so that it curves around in front of the end of the straight section (fig. A). This is unnecessary on most other types of strip. Instead a small curved arm is attached to the track and the end of the curtain is hung from the arm. As the curtain is drawn, the arm runs along with it and brings the edge out about 12mm to allow for a suitable overlap.

For hanging curtains inside a recessed window—in a bathroom or kitchen for example—you can buy a tension rod which is strongly sprung to adjust to the size of the window and hold itself in position. Tension rods are particularly useful in temporary accomodation as they can be used again and again.

Draw cords

Fitting a draw cord system to a run of track makes a curtain glide more smoothly along the track as it is drawn. And as you do not have to handle the edge of the curtain it also prolongs the life of the fabric.

Most straight runs of track and mock curtain poles can be fitted with a draw cord assembly and some expensive tracks come with draw cords already fitted. For other types, you can buy a kit, of the same make as the track, complete with cord, pulleys, weights and fitting instructions.

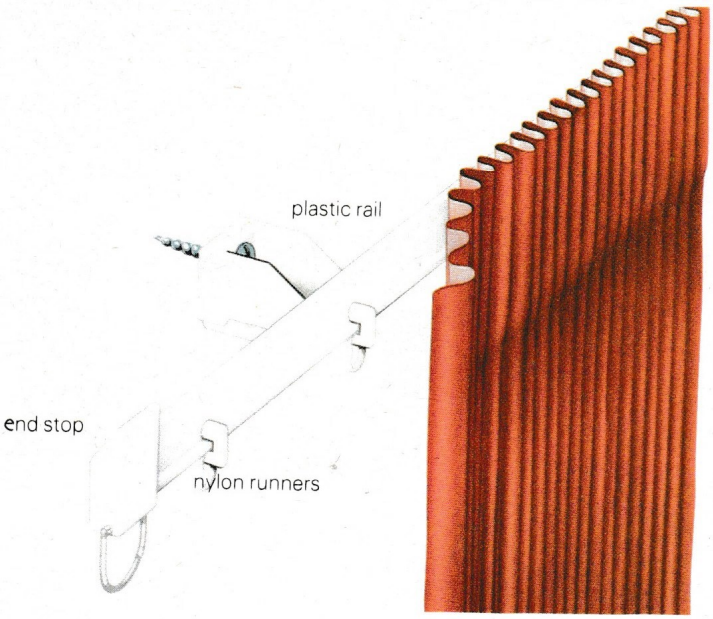
Buying the track

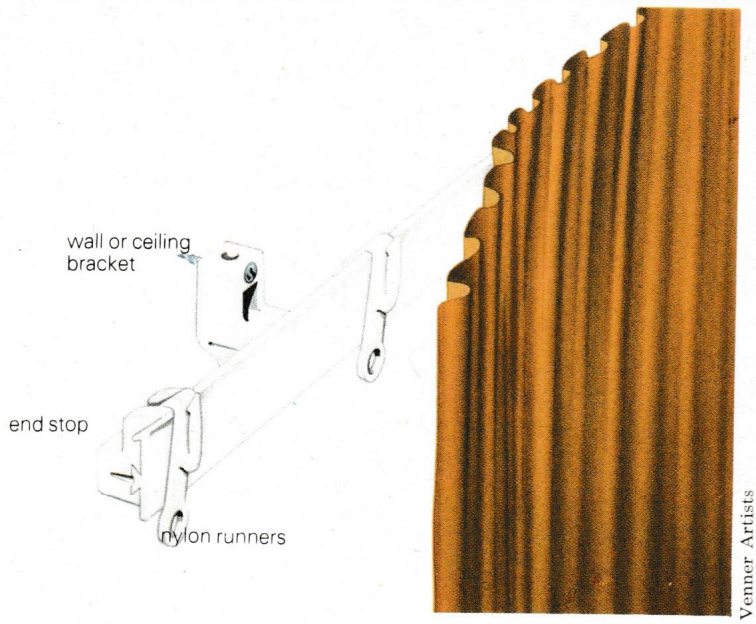
Curtain track is sold in standard lengths with 150mm or 300mm increases and usually comes supplied with the necessary runners and end stops. A pair of fixing brackets and their screws are also usually provided, but for runs of over two metres or for particularly heavy curtains, buy one or two extra brackets.

4 *If you are fixing flexible track to a bay window, bend the track to curve around the corners. Take care not to bend it into sharp angles*

5 *If fitting to a bay, you may find that a small amount of track is left protruding at the ends. Mark the area of waste to be cut*

6 *Cut off the protruding end of the track with a coping saw or hacksaw. Hold the track and end bracket in the other hand as you saw*





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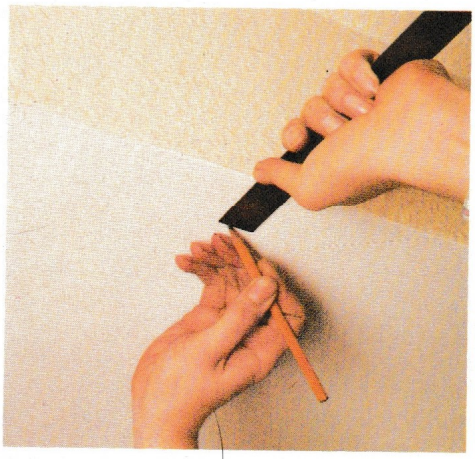


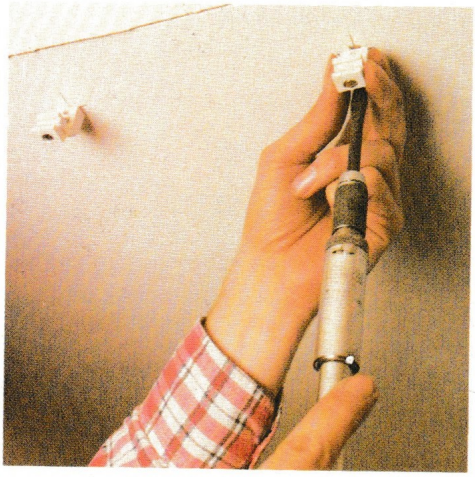
7 *When fixing track to a ceiling begin by marking equal distances from a convenient point, such as the wall or the front of an alcove*

8 *Drill holes for the screw of each bracket using a masonry drill. On a normal ceiling, the brackets can be screwed into the joists above*

The length of track you need depends on how far back you want the curtains to draw. Curtain track is normally fitted outside the window reveal to the wall or frame above. If you want the curtains to draw right back from the window during the day so that they do not exclude any light, the track should be long enough to extend 200mm either side of the reveal —very thick curtains need to be extended even further.

Where there is insufficient space for fixing on the wall above the window, you can fix the track to the ceiling. With some types of track, special brackets are needed for ceiling fixing, so check with the retailer that the supplied brackets are suitable. If you intend to hang the curtain to the ceiling in a recess, the same applies.

9 *If you are drilling holes in the lowered ceiling of an alcove, plug them with wall plugs of the correct size for the screws*



10 *Mounting brackets on most types of track are suitable for either wall or ceiling fixing, as the screws enter from either direction*

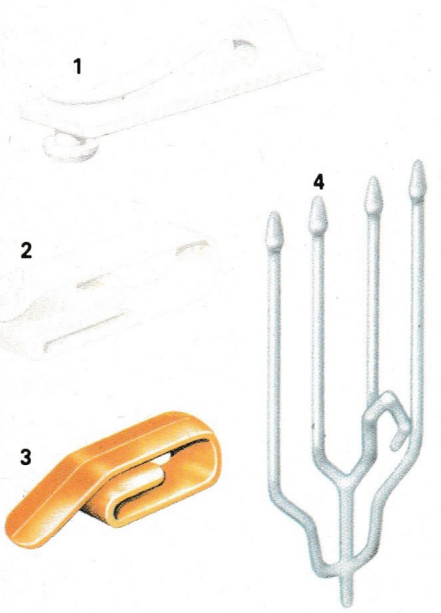
11 *When the brackets are secured on the ceiling, clip the track into place. Tighten the screw at the base of each bracket*

You may want to bring the track away from the wall so that the curtains are clear of the window sill and, with most types of track, extension brackets are available for this purpose. But if you decide to fix the track to a batten (see below), the brackets are not necessary.

When you have decided where to fix the track, measure the run. In some cases the supplier will cut track to any required length but if not, buy a piece of the nearest available size above the required length and cut it with a fine-toothed hacksaw.

When measuring the run for a curtain pole, bear in mind that the end pieces will add some length to each end when fitted, so there must be enough space on the fixing surface to accommodate them. If you have to buy separate fixing brackets for a curtain pole, try and match them to the style of the pole as they will be visible.

B. Far left: *Standard plastics rail for lightweight curtains comes with brackets for wall or ceiling mounting*
Left: *Flexible plastics track can be bent to fit bay and recessed windows*
Below: *(1) The combined runner/hook stud-clips into a special track (2) Simple nylon curtain hook (3) Traditional metal curtain hook (4) Long-stemmed hook for pleats*



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Fixing the track

Curtain track can be screwed directly to a wooden window frame only where this is flat and wide enough to accommodate the fixing brackets. If the frame is not suitable, you will have to fix the track to the wall or ceiling above the window.

Track can be fixed to a wall either by screwing the brackets straight on to the surface or by fixing them to a wooden batten mounted on the wall. To fix directly to the wall, begin by drawing a straight pencil line the length of the run, using a spirit level both as a guide to level and as a straight-edge. The pencil line acts as a guide to accurate positioning of the mounting brackets.

The two end brackets should be placed about 50mm from each end of the track, with the other brackets spaced evenly between. Hold the brackets in place and mark their fixing screw positions on the wall, then drill the screw holes (fig. 1). Bear in mind that if the screws provided are short and the curtain fabric is heavy, you should exchange them for longer ones to prevent the weight of the material pulling the track from the wall. Ideally, the screws should be long enough to penetrate through the plaster and about 38mm into the brickwork behind.

Fixing the track to a batten has the advantage of projecting it slightly away from the wall without the need for extension brackets. It also makes it easier to check that the run is level because you can align the bottom edge of the batten with the top edge of the window reveal. The batten should be about 50mm shorter than the track and 50-75mm wide by 25mm thick. For fixing it to the wall use 10mm x 63mm countersunk screws.

Start by drilling holes for the mounting screws at regular intervals along the batten. Place a screw 75mm from each end, and the remainder at 600mm intervals for heavy curtains and 800mm for light ones.

Hold the batten in position on the wall, lining up its bottom edge with the top of the window reveal. Mark the wall through it and drill holes for the wall plugs. Fix the brackets to the batten and make sure that they are in line, then mount the batten into place on the surface of wall.

You may find that the space above the window has a reinforced lintel, in which case the wall material may be too hard even for a masonry drill to penetrate. The alternatives are to use a percussion drill—which can be hired—or, if the curtain fabric is light and the wall is not papered, you can fix a batten satisfactorily using heavy-duty contact adhesive.

If there is no space on either the window frame or the wall, fix the track to the ceiling. The brackets can be positioned in the corner where the

12 *This type of curtain hook clips directly onto the track. Thread the hooks through the heading tape on the back of the material*

13 *Slide each hook onto the end of the track in turn, running the curtain along until all but the end hook are in place*

14 *Slide the end stop onto the end of the track and tighten its screw. Draw the curtain to check that it runs smoothly along the track*

ceiling meets the wall or, to allow the curtain to clear the frame and sill, at equal distances from the wall (fig. 7). The brackets should be screwed through the plaster into the joists above or into boards fixed between the joists (see pages 240-244).

Hanging a curtain

The bottom of a curtain track runner, from which a curtain hook is suspended, is known as a *hook drop*. You cannot measure for curtain length accurately until the track is in position and its runners are in place, because all length measurements should be taken from the hook drops—not from the track itself.

A full-length curtain should clear the floor by about 20-30mm to avoid picking up dust and dirt. A half-length curtain hung outside the reveal should be 50-75mm below the level of the sill while a curtain hung within a recess should clear the sill by 20-30mm.

Standard curtain hooks are made of nylon or rust-proof metal (fig. B). They are secured to a curtain by being threaded into pockets in the heading tape on the back of the fabric. Heading tape usually has a drawstring which, when pulled and tied, pleats the curtain. Different types of heading tape create different pleating patterns.

Make sure that you have enough hooks to space at regular intervals along the width of the curtain. If the track has not been supplied with runners, buy some of a suitable type at the same time. For a single run of track you need one less runner than the number of hooks, as the end hook attaches to the end stop and holds the edge of the curtain in position (fig. 14).

Although standard hooks are suitable for most types of runner, some tracks have special combined runner hooks (fig. B). With this type, one end slides into or onto the track and the other slips into the heading tape. These special hooks always come supplied with the track, but make sure that there are enough for the curtain, and buy more if necessary.

The runners on curtain poles consist of rings which encircle the pole or half-rings which hang on it. The hook drops are formed by tail pieces on the rings which have small eyes. Standard hooks are usually too large to fit these eyes, so thin wire hooks, or long-stemmed hooks, are required.

On curtains with simple pinch-pleat headings, the tape does not usually have a drawstring. Instead, the pleats are formed by bunching the fabric at regular intervals into a number of pleats—usually three—and setting long-stemmed hooks into the tape behind each bunch (fig. B). These hooks can be attached to most types of runner, including those on the majority of curtain poles.

When you have bought your hooks, thread them into the pockets along the heading tape, then slip the last hook through the hook drop of the end stop. Work along the run, fitting each hook securely into its hook drop and when all the hooks are in place, draw the curtain back and forth to check that it runs smoothly (fig. 16).

If the sides of the curtain do not hang straight, you can sew small weights into the hem at the corners or lead weighted tape into, and along, the hem. Both are available at most curtain track retailers.

15 *Standard nylon curtain hooks hang from runners on the track. Insert them, at intervals of 50mm, into the heading tape*

16 *With all the runners in place on the track, slip each hook through its hook drop. The last hook is fitted to the end stop*

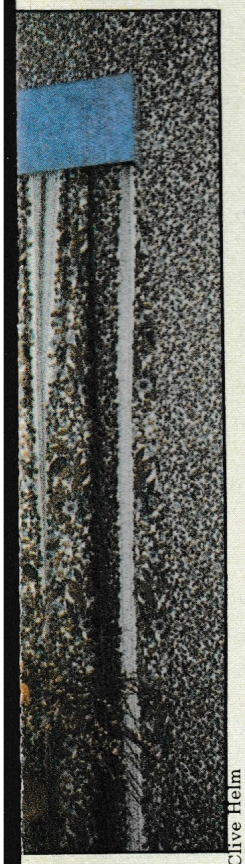
A simple slot-in pelmet

One way to give a neat finish to curtain hanging is to conceal the tracks and fittings behind a fitted pelmet which blends with the decor.

This design is very simple to build—you can finish the woodwork in an afternoon. The pelmet is arranged on brackets so it can be lifted off for cleaning or to service the curtain hangings.

The pelmet shown above is made from hardboard painted to match the decoration of the room, and is very effective in a simple, straight-edged design. If you want a more elaborate shape like one of those illustrated opposite, the hardboard can easily be cut to a new profile.

A further alternative, which gives a very attractive appearance, is also illustrated opposite. You can use some of the curtain fabric or a toning material and stiffen it with buckram to make a strong, light fascia. Gather it into pleats for an even more decorative effect.



Clive Helm

18mm No.8 (4·2mm) domed head woodscrews

Top board from 100×25mm planed all round softwood

The fascia is made from 3mm hardboard or birch plywood glued and pinned to the top board using hardboard pins set at 100mm intervals. After filling and sanding, paint with hardboard primer and then to match your decor. Suit the depth of the pelmet to the proportions of the windows and of the room, but a minimum of 150mm is advisable

75mm steel angle brackets set at 600mm intervals

End board from 3mm hardboard or plywood to match fascia in depth. This not necessary if pelmet extends into corners of room

22

97

72

22

97

If end piece is fitted, leave fascia oversize and plane to fit flush over the end piece. If the fascia is very deep, you may need to fit a small glue block into this angle to tie fascia and end piece together

3

plastic wall plugs for No.10 screws

Cut this housing to exact dimensions of brackets used

Fixing batten from 75×75mm planed all round softwood

62mm No.10 (4·9mm) countersunk woodscrews set adjacent to brackets in matching countersunk clearance holes

upholstery braid

tacks

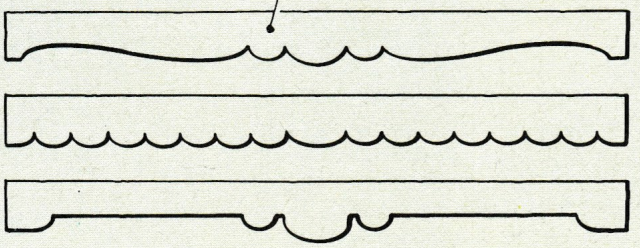
buckram

fabric

decorative upholstery pins

As an alternative fascia, you can use fabric to match other furnishings. Cut a piece of buckram to the dimensions of the fascia and cover this with fabric either glued or stitched on at the back. Pin this to the top board using tacks concealed behind a decorative braid, or use decorative upholstery pins

The fascia board can be left straight, but it is easy to cut a profile such as the ones shown here. Mark out carefully, using a ruler and compasses, and cut using a fret saw. Sand smooth then paint as for a plain fascia



Advertising Arts

Above-ground drainage

● The three types of drainage system in common use ● Variations for single-storey homes ● The importance of waste traps and water seals ● Adding new discharge pipes

In the UK, above-ground drainage systems are governed by a variety of regulations and local authority bye-laws. Plans of all proposed alterations to your existing system must be submitted to the Building Control Department of your Local Authority. The inspector there will be able to authorize the plans and also give guidance and advice.

Above-ground drainage is an important part of the structure of any house. Understanding how it works enables you to clear blockages quickly and effectively and gives a useful insight into how future additions to your plumbing can be made.

Three types of above-ground drainage systems are in common use in the UK although variations and modifications are frequently used.

In a *two-pipe system*, soil and waste discharges are piped separately to the ground drain. 'Soil' describes effluent from the wc; 'waste' describes water not contaminated by 'soil', including washwater. The two pipes may or may not be provided with ventilation pipes to balance out pressures in the system, depending on its size.

A variation of the two-pipe system is still occasionally used for bungalows but new UK regulations require all pipework to be contained within the building. The system is more often seen on older housing as the amount of pipework is considered extravagant by present standards.

The hopper head (fig. A) used by this system for collecting bath and basin waste at each floor can become foul-smelling in hot weather, and its waste pipe blocked by dead leaves and suchlike at other times. This causes the hopper to overspill, leaving stains on the face wall of the building.

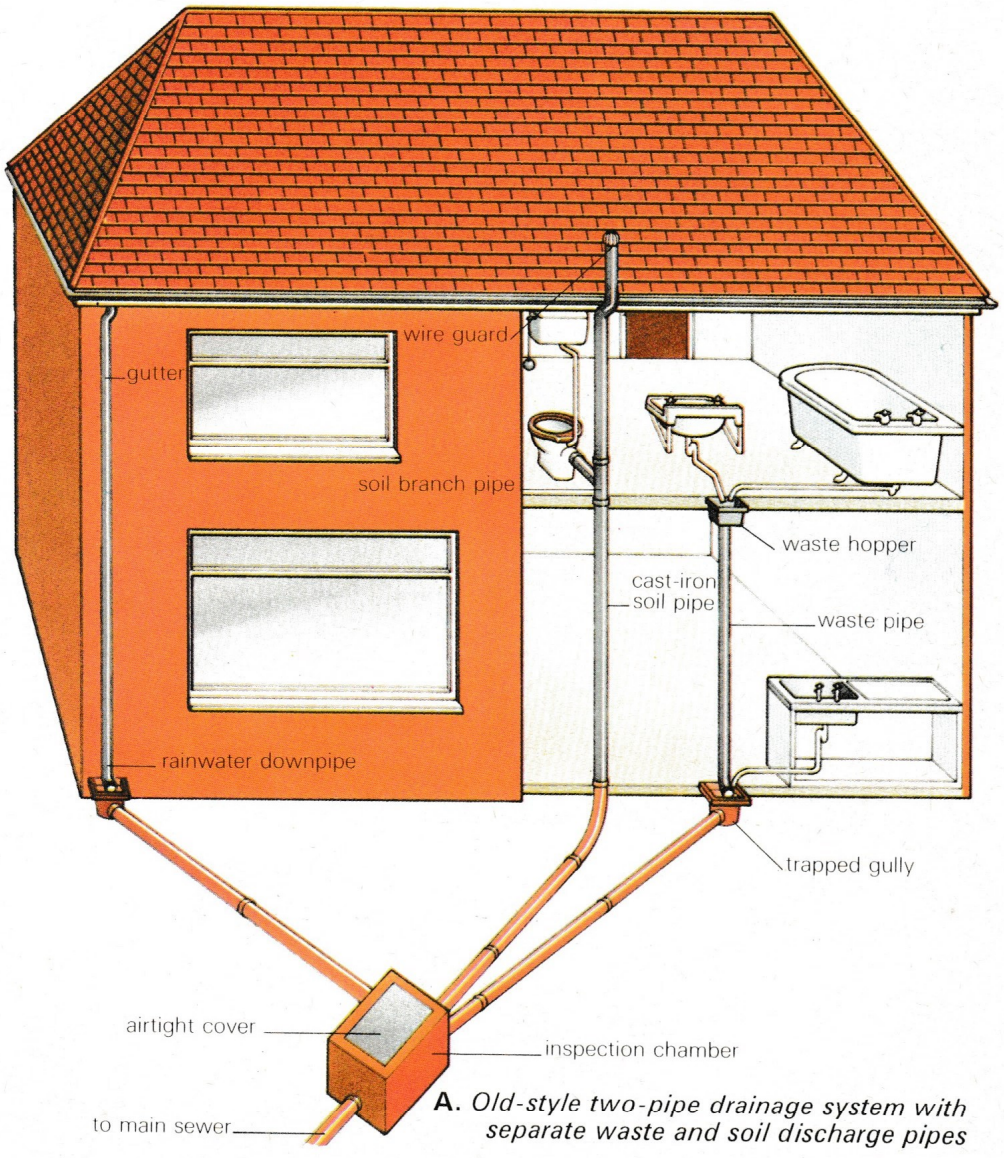
In the *one-pipe system* all the soil and waste water discharges into a single, common pipe which runs down an outside wall. Individual ventilating pipes from the discharge pipes, which carry the waste from the appliances, are all connected to a main ventilating pipe. A modified version, with a variation on the method of ventilation, is used in multi-storey buildings. The one-pipe system can be seen on good-quality housing built between 1930 and 1950, but has since been superceded by the *single-stack* system for most forms of housing below five storeys.

Here, the soil and waste water discharges into a single pipe or *stack*, built in to the structure of the house. The top of the stack, which rises through the roof, normally provides the sole means of ventilation (fig. B).

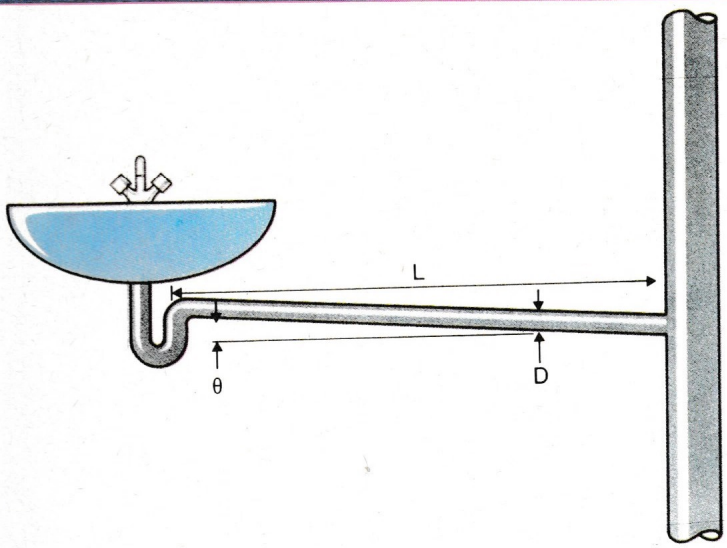
The efficient working of a single-stack system is dependent on all the branches being as short and as closely grouped on the stack as possible—an important point to bear in mind.

Where a discharge pipe over the recommended length has to be installed, an extra vent pipe is run from the pipe near the appliance to a point at least one metre above the nearest entry to the stack. This balances out the pressures in the system which might otherwise result in the siphonage problems described below.

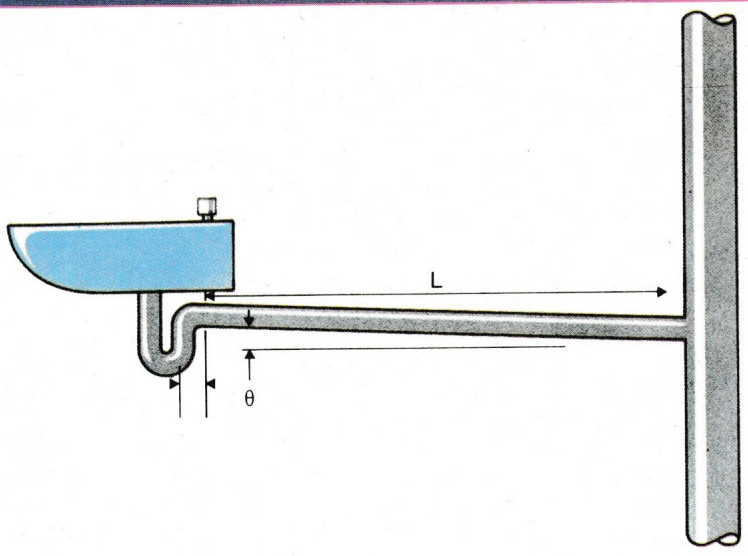
Because it is contained within the structure of the house, access to a single-stack system can often prove more difficult than to older systems. This is outweighed, however, by the saving on pipework and by the protection afforded against frost damage.



A. *Old-style two-pipe drainage system with separate waste and soil discharge pipes*



C. *Hand-basin design when a 36mm branch pipe (D) is used: the maximum slope (θ) depends on pipe length L between trap and vent—about 1.5° for 1.5m, 2° for 1.25m, 3° for 1m, 4.5° for 0.75m. A trap of 75mm seal depth and 32mm width is needed*



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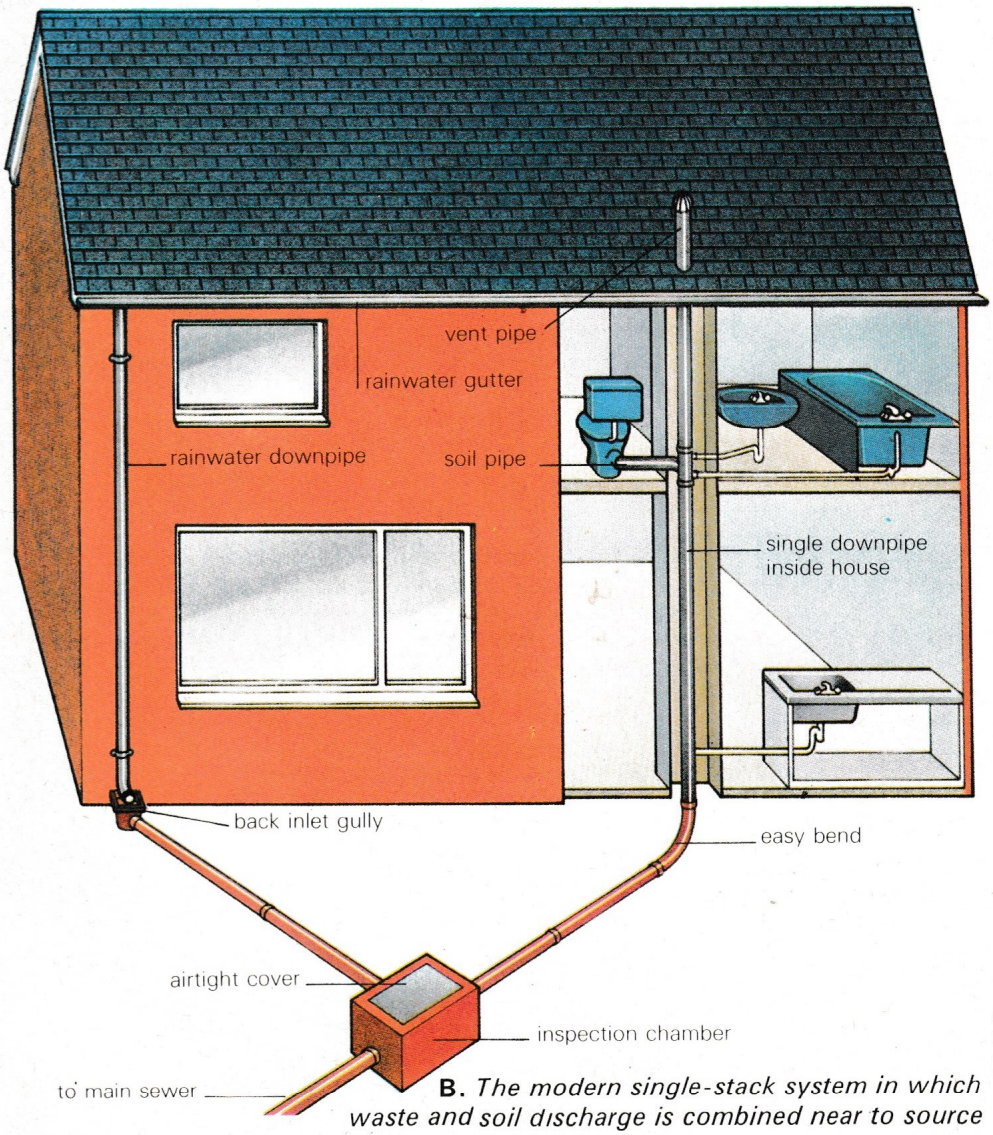
D. *Bidet design calls for use of a 42mm branch pipe, and the slope of this (θ) must be between 1° and 2.5° (a drop of between 18mm and 45mm per metre). L must be between 1.7m and 3m. A trap of 75mm seal depth and 38mm diameter is needed*



B. *The modern single-stack system in which waste and soil discharge is combined near to source*

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Sub-stacks and gullies

In single storey houses, appliances are sometimes connected to a *sub-stack*—a short stack which runs directly to the ground drain. Fig. I shows the strict regulations governing stack installations of all types.

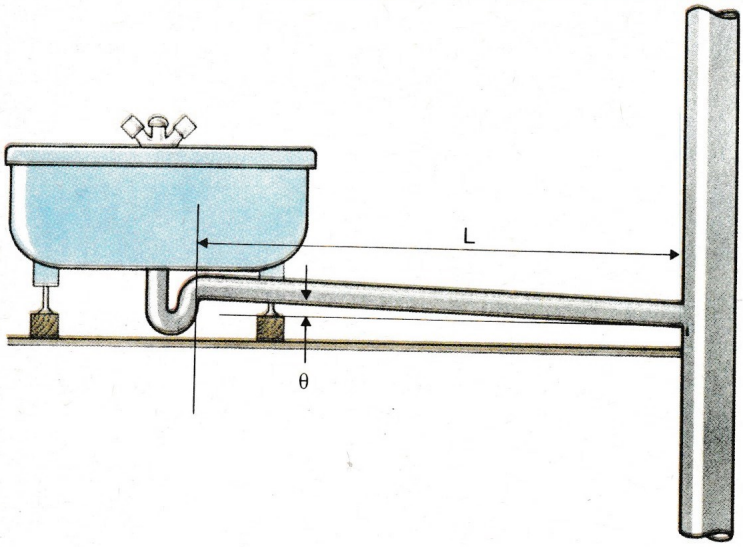
In many houses, waste water discharge from the kitchen sink runs to a separate gully (fig. A) which has its own waste trap (see below) and connection to the ground drain. In houses employing a two-pipe system, the gulley will be below the hopper head. In single-stacked houses, the discharge pipe from the sink is connected below the gulley grid but above the level of the water in the trap (fig. B). This arrangement is commonly known as a *back inlet gulley*.

Some local authorities permit other waste water appliances—such as washing machines and showers—to be discharged into the gulley. The rules here are the same as those governing the sink discharge pipe (fig. G).

Waste traps

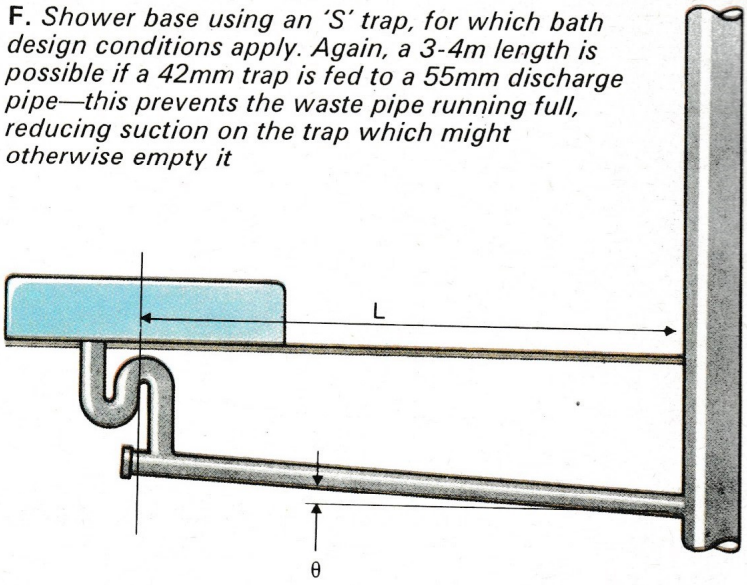
To prevent foul air entering the home, simple devices known as *traps* are employed on each and every discharge pipe. A trap is little more than a depression or a bend which retains water but does not interfere with the flow of water through the pipe it serves. This *water seal* prevents air on the drain side of the bend from entering the room.

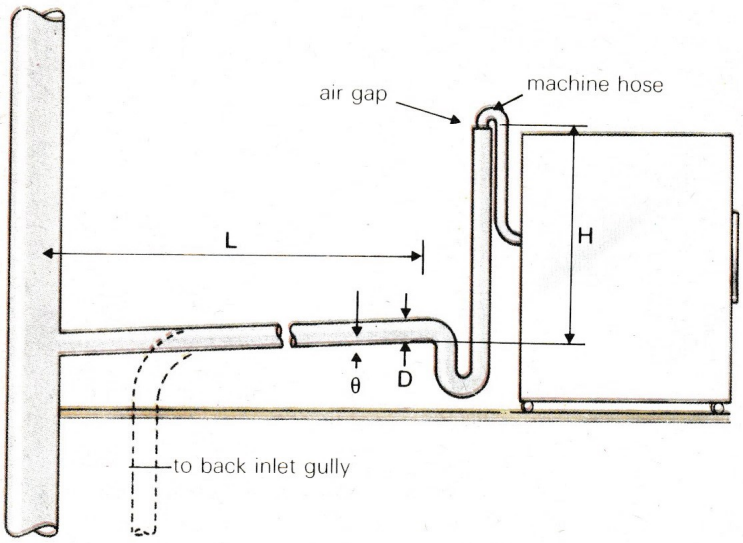
Traps come in a variety of shapes according to their function and fitting —and may in fact be incorporated



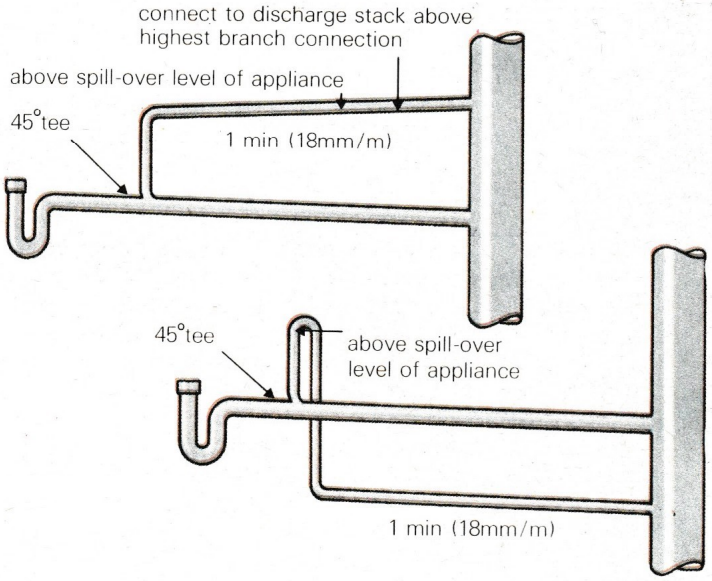
E. *Bath design using a 'P' trap. Slope of the discharge pipe must be between 1° and 5° (18 to 90mm/m) and its length kept to less than 3m. A 3-4m length can be fitted using a 42mm trap (with short 50mm tail pipe) into a 55mm pipe*

F. *Shower base using an 'S' trap, for which bath design conditions apply. Again, a 3-4m length is possible if a 42mm trap is fed to a 55mm discharge pipe—this prevents the waste pipe running full, reducing suction on the trap which might otherwise empty it*





G. *Plumbing in a washing machine. Slope (θ) of 42mm discharge pipe is between 1° and 2.5° (18 to 45mm/m), L must be 3m, H between 600mm and 900mm (depends on machine). Low-level outlets must be piped to a back inlet gully*



H. *Two arrangements for providing ventilating pipes, needed when more than two bends occur in any branch pipe or when long pipe stretches require relief venting. The alternative system (beneath) is better because it avoids unsightly pipework*

within an appliance. 'P' and 'S' shaped traps are the most common, though they are now being superceded by the modern *bottle* trap. These are all used directly beneath the discharge outlet of baths, basins and sinks.

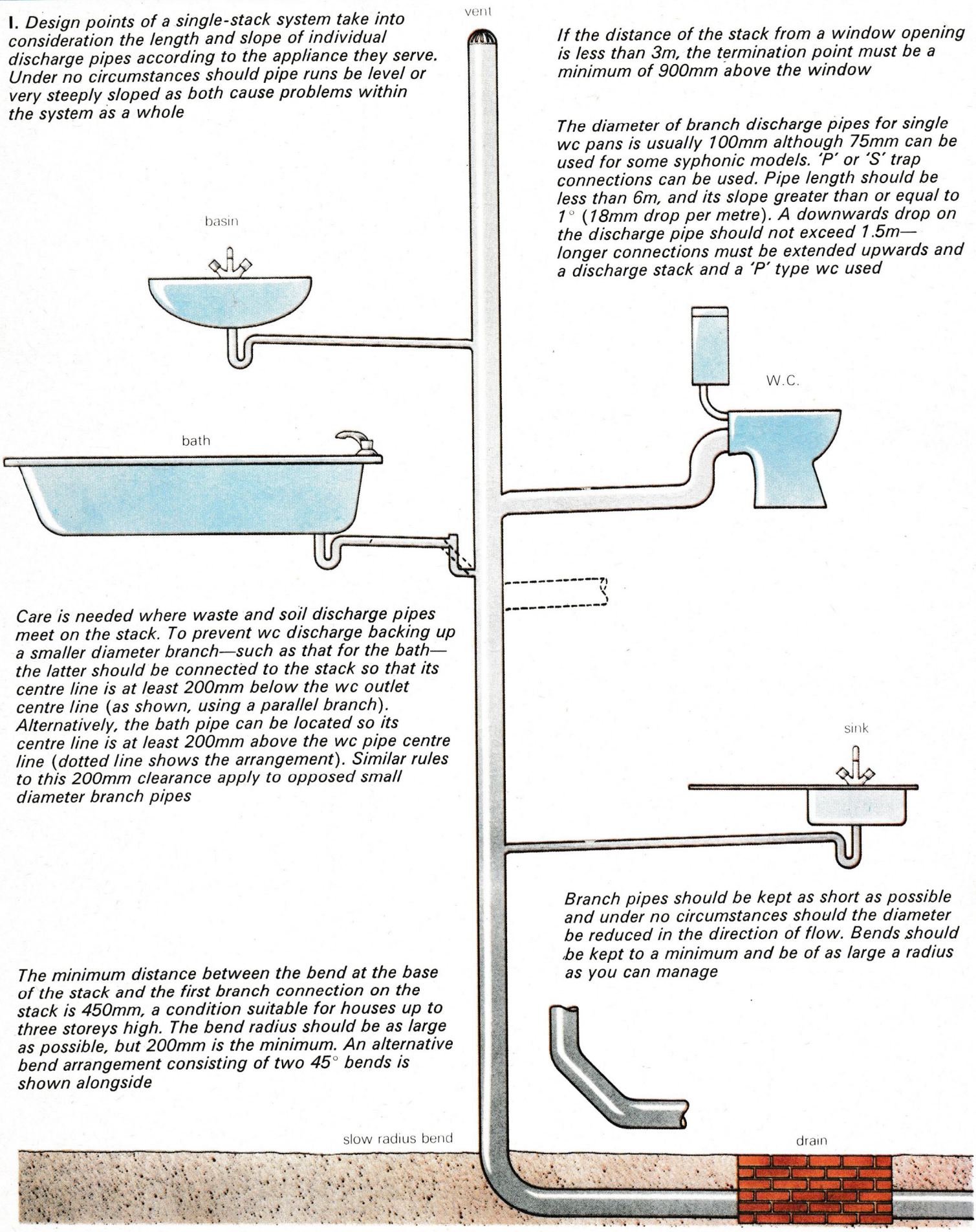
The water seal is the important part of the trap and the depth of water must be maintained. Loss of the trap through *self-siphonage*, *induced-siphonage* or *evaporation* can result in fumes or waste entering the house.

Self-siphonage occurs when a reduction of pressure occurs within the 'drain' part of a system, resulting in an individual appliance losing its seal when flushed or drained. Induced-siphonage occurs under similar conditions, but in this instance one appliance—such as a wc when flushed—sucks out the trap of another appliance where this trap is weaker or of incorrect depth.

Problems of evaporation may occur in long hot spells if an appliance is left unused for any length of time. An outside appliance is particularly prone and the best thing that can be done to prevent the loss of water depth in the trap—hence weakening it—is to try to arrange for someone to flush the appliance from time to time.

In rare instances *blow-back* (*compression*) may occur when there is a burst of unusually high pressure in a system. A discharge high in the stack released shortly after another nearing the bottom—and being slowed down by the bend there—causes the air between the two to become slightly compressed. Sometimes this pressure is sufficient to 'blow' the traps of lower waste appliances (bath, basin, bidet, sinks, shower) but not those of soil appliances (wc, slop sink).

1. *Design points of a single-stack system take into consideration the length and slope of individual discharge pipes according to the appliance they serve. Under no circumstances should pipe runs be level or very steeply sloped as both cause problems within the system as a whole*



If the distance of the stack from a window opening is less than 3m, the termination point must be a minimum of 900mm above the window

The diameter of branch discharge pipes for single wc pans is usually 100mm although 75mm can be used for some syphonic models. 'P' or 'S' trap connections can be used. Pipe length should be less than 6m, and its slope greater than or equal to 1° (18mm drop per metre). A downwards drop on the discharge pipe should not exceed 1.5m—longer connections must be extended upwards and a discharge stack and a 'P' type wc used

Care is needed where waste and soil discharge pipes meet on the stack. To prevent wc discharge backing up a smaller diameter branch—such as that for the bath—the latter should be connected to the stack so that its centre line is at least 200mm below the wc outlet centre line (as shown, using a parallel branch). Alternatively, the bath pipe can be located so its centre line is at least 200mm above the wc pipe centre line (dotted line shows the arrangement). Similar rules to this 200mm clearance apply to opposed small diameter branch pipes

Branch pipes should be kept as short as possible and under no circumstances should the diameter be reduced in the direction of flow. Bends should be kept to a minimum and be of as large a radius as you can manage

The minimum distance between the bend at the base of the stack and the first branch connection on the stack is 450mm, a condition suitable for houses up to three storeys high. The bend radius should be as large as possible, but 200mm is the minimum. An alternative bend arrangement consisting of two 45° bends is shown alongside

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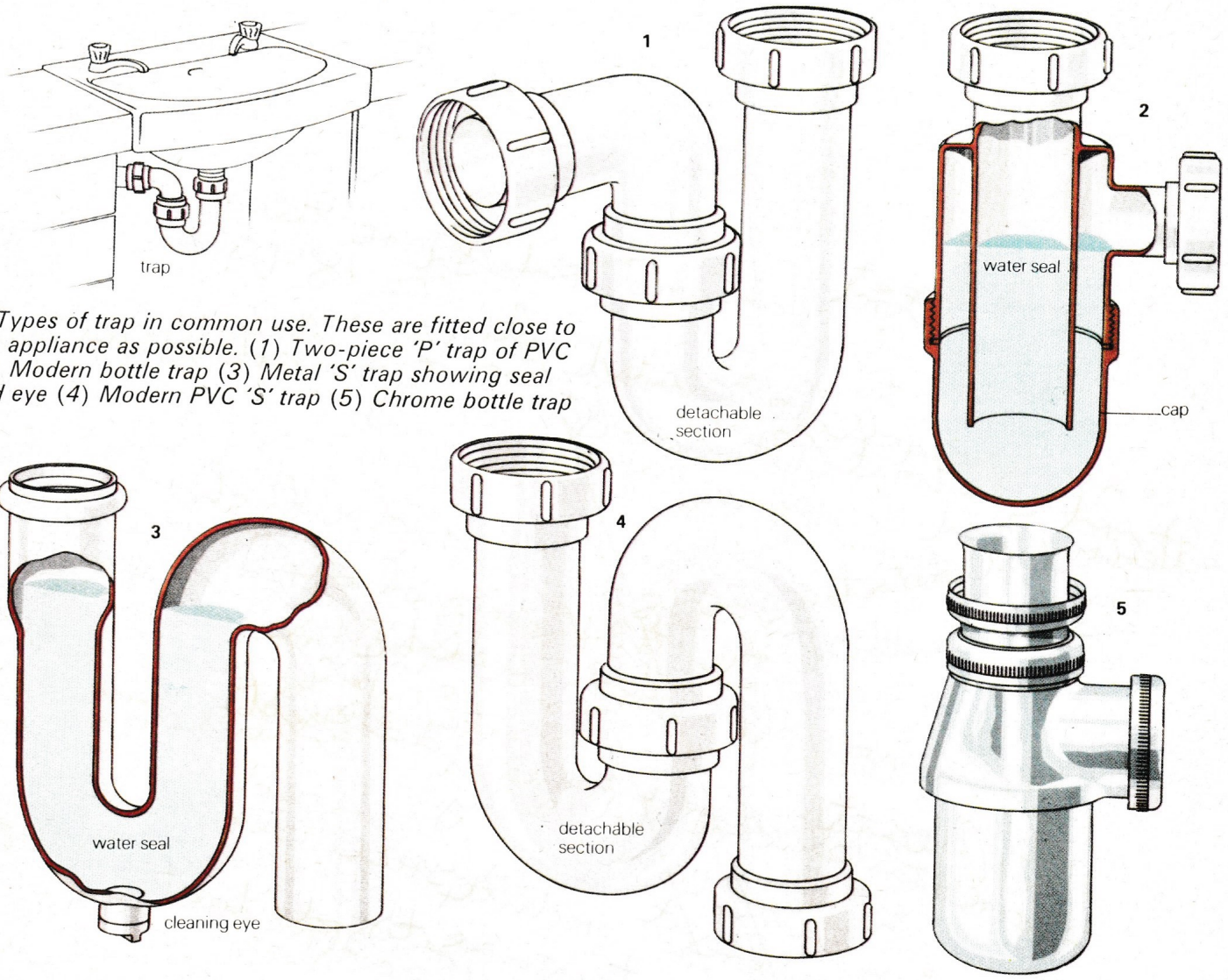


J. *Types of trap in common use. These are fitted close to the appliance as possible. (1) Two-piece 'P' trap of PVC (2) Modern bottle trap (3) Metal 'S' trap showing seal and eye (4) Modern PVC 'S' trap (5) Chrome bottle trap*

Venner Artists

Blow-back may also occur if discharge from one appliance (such as a wc) is allowed to force itself into a lesser discharge branch (such as that for a bath). This will occur if the centre lines of both discharge pipes meet at a common point—a mistake all too easily made when considering additions to a discharge stack. Fig. I shows how the two can be fitted.

Every type of trap has some form of access for clearing blockages. Older traps have a screw-in plug or 'eye' fitted to the lowest part. The newer, two-piece traps made of PVC are simply unscrewed if a blockage occurs. The access plate near to a wc is normally large enough to permit rodding in the event of a blockage.

Drainage requirements

The requirements governing above-ground drainage systems may seem unnecessarily complicated but failure to observe them can result in frequent blockages and the kind of siphonage problems described above.

In older houses, poor or haphazard installation of the various discharge pipes is often the most common cause of blockages.

Figs C to H show the design points to watch for when planning the drainage for a new appliance or checking on the efficiency of your existing system.

As a general rule, discharge pipes should be kept short and as free from bends as possible. Each must be connected independently to the relevant stack or pipe. In single-stack systems, the connections are best made as close together as possible.

Adding discharge pipes

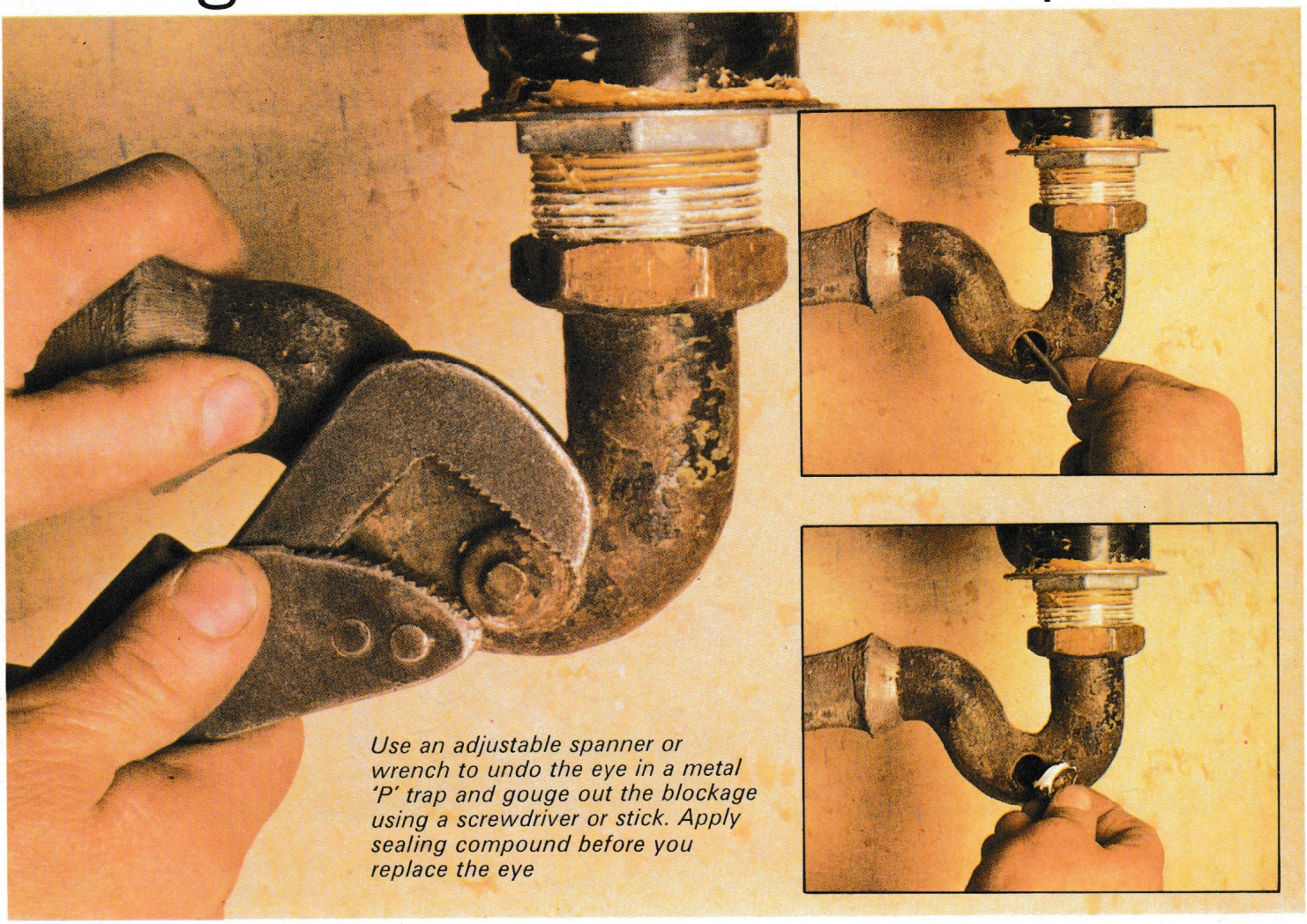
When planning the run of a discharge pipe for a new appliance, bear in mind that it should follow the design recommendations in figs C to H as closely as possible—even if this restricts your choice of site.

Waste water discharges from two-pipe systems can usually run to the hopper head on the first floor, or to the gully on the ground.

Soil discharges present more of a problem as it is nearly impossible to break into old, cast-iron or earthenware soil pipes. Unless the branch fitting to the existing wc can be dismantled and replaced with a ready-made twin-branch fitting, it will generally prove easier to replace the entire soil pipe with one made of more workable PVC material.

Waste and soil discharge connections to a single stack are much more straightforward. Providing the site of the extra appliance is carefully chosen, and the run of the discharge pipe planned to join the stack close to an existing branch, then normally all you have to do is change this for a new fitting which has the extra discharge pipe socket you need. You could get this professionally fitted.

Clearing blocked sinks and waste traps



Use an adjustable spanner or wrench to undo the eye in a metal 'P' trap and gouge out the blockage using a screwdriver or stick. Apply sealing compound before you replace the eye

Try a plunger before attempting to dismantle a trap. Stuff a damp rag into the overflow—or use suitable tape —and bale out all but a small depth of water before you start using the plunger

Nigel Messett

A plunger, ideally with a metal plate above the rubber cup, must be jerked vigorously up and down to create sufficient water pressure inside the trap to remove a wc blockage

What to put on the wall

Syndication International

Above: *Pictures do not have to be the same shape and size in order to hang well together. These block-backed posters in various sizes form an overall coherent shape for an inexpensive wall decoration*

You do not need a Picasso or a Michelangelo to make an impressive wall display—anything from pots and pans to photographs and Persian rugs can be used with great effect

One of the most demanding aspects of home decorating—choosing exactly what you want on your walls—usually comes at the very end of a lot of decorating activity. Often, if you have been busily painting, carpeting, laying new floors and wallpapering, there is not much left in the budget for new paintings and wall ornaments. In this case, inventive adaption becomes a financial necessity.

There is a huge, expanding market in prints, posters, reproductions, not to mention wall hangings, batik and woven materials. But the difficulty is normally knowing where to start.

The obvious place is your pocket. No amount of ideas and novelties will dissuade some householders from spending time browsing in art galleries and buying good prints and lithographs. But most of us are obliged to try out inventive, low-cost ideas which fit in with what we can afford.

To a large degree, your choice of pictures and wall ornaments will be determined by the atmosphere of your house and by how it is decorated. For example, if you have a country-style house with plenty of brickwork showing, combined with stripped pine furniture and subdued colours, you will find that what you add at this stage greatly affects the overall look of the inside of the house.

Certain guidelines are self-evident. Modern art reproductions or prints with streamlined metal frames look harsh and out of place in this kind of surrounding. Substantial wood-framed paintings and fabric wall hangings are probably more suitable. So beware of awkward contrasts and colour schemes and remember that some of the best paintings will look horrific in the wrong place or set against the wrong colour.

After redecoration hold the pictures you already have against the proposed wall sites and get someone to judge their suitability. You might find that your new house design has made certain pictures redundant.

Some pictures and wall decorations can be used merely to break up the monotony of a large area of wall rather than as an eye-catching feature in their own right. You must first decide whether you want this neutral kind of ornamentation or something more positive.

Another consideration is the linking value that paintings, prints and ornaments have in setting up a theme throughout the house. If you have a modern kitchen in an otherwise old or

traditionally decorated house, the choice of pictures in one type of room may lend quite a lot of visual coherence to the other.

On the other hand you may find that each bedroom, sitting room, dining room requires its own distinctive and integral style. But this can be difficult to accomplish successfully without looking too obvious or even cluttered. Working to a specific style or theme tends to be both easiest and most effective.

Paintings

New and original paintings can be depressingly expensive. If you are keen to have them think in terms of a spare spacing scheme where each picture will get maximum visual potential. This is where good colour scheming becomes really important. In a living room one painting, even a quite small one, can look extremely attractive providing it is well lit, subtly placed and tones with the colour of the surrounding wall.

Remember that a good frame is fundamental to the effect of the painting and it might be well worth having inadequate or broken frames redone to suit a new house or colour scheme.

If you do intend to buy new pictures try to avoid the cheaper, mass-produced reproductions. Some of them may look quite attractive but on the whole their warp value exceeds their appeal because of inadequate gauge of hardboard and thin framing material.

One place yet to be fully exploited by ornament hunters is the junk or 'antique' shop. You may not always find good or attractive pictures here, but old oak or plaster mould frames can often be found at a reasonable price. A solid old-fashioned frame alone is a good start. In the traditional or country-style house several small prints, photographs and miniatures clustered within a large ornate frame on the wall can look superb. The frame attracts attention and focus to the smaller objects which might otherwise be lost on large areas of wall. You can also create a kind of optical illusion by having a composite picture made up of smaller ones.

Syndication International

Right: *Weathered and earthenware objects are ideal ornaments to adorn a bare brick wall and form an interesting combination of textures.*
Below: *Simple sewing techniques and ordinary garden cane have been used here to create a really colourful and effective wall hanging that can grace any room*

Elizabeth Whiting

Wall hangings

Wall hangings go well almost anywhere in the house but are perhaps least practical in the kitchen. Persian rugs, woven fabrics, sheepskin rugs, batik, scroll fabrics, macramé, patchworks, tapestries—anything with a cloth base can be hung on a wall. But for low-cost wall hangings you will probably have to do a little handiwork, weaving, sewing or tie-dyeing. These decorations tend to be marketed as a specialist craft commodity so are generally rather expensive.

A major advantage of wall hangings is the way they tend to dominate the scheme of a room. You can seldom hang a rug on a wall together with paintings or posters. So if you have few paintings or posters you may find the positive effect of these fabric murals particularly worthwhile.

Fabric decorations also benefit a room by giving it more texture. A very simply decorated, sparely furnished living room with sanded and sealed boards can be given just the right degree of warmth and comfort by means of an imposing wall hanging.

The macramé style of knotted string and beads can be functional as well as decorative. Macramé work with string and bead pockets for flower pots can look quite unusual and distinguished when hung in the right place.

In a child's bedroom a false window blind painted on by the children or used as a surface to stick a collage of materials—photographs, postcards, ribbons, bicycle clips—makes novel use of functional material.

Personal touch

There is a space for anything on a wall and there is no reason why decorations should be of the two-dimensional and orthodox kind.

One interesting idea—probably most suitable in the bedroom—is to set photographs on top of a series of boxes painted in colours that tone in with the room. The boxes, simply constructed of plywood glued and pinned, can be various shapes and sizes according to the photograph they are supporting. Once you have a three-dimensional landscape on your wall you also have more potential to create interesting lighting effects.

Another way of using photographs is to create your own photo-montage. To do this you require only a large piece of plain or coloured card, some family photographs, glue and scissors. Remember you can always have a certain photograph blown-up to make a visual backdrop for the others. If you are particularly satisfied with the result you can frame it and perhaps incorporate non-reflective glass. Again, look for an old frame to which you can adapt your montage.

Driftwood, either in one piece or several, looks very spectacular mounted on the wall. Within a small area several pieces of irregular-shaped wood and perhaps cork as well, makes an impressive ornament. Even in smart modern living rooms a well polished single piece of driftwood can be very elegant.

If you like the idea of a house full of plants there are numerous eye-catching ways of suspending potted plants and flowers on the wall. One method is to employ an old tin army or fireman's helmet inverted, filled with earth and attached by means of a wrap-around cord to a bracket on the wall. The bracket itself can also be decorative—either shape something for yourself out of wood or adapt old-fashioned cast-iron brackets. An unlikely sounding place to look for these brackets is in the outside lavatory. The brackets that carry the cisterns can be amazingly decorative and ornate, especially when derusted and painted.

Having pictures in a block system which is almost frame to frame in one section of wall can have great visual appeal. Pictures placed in a square or rectangle immediately above a piece of furniture such as bureau, a chest or even a sofa, tend to complement its shape and give it almost a backdrop effect. Displaying pictures in this way gives them a dual role where the individual appeal of each picture combines with an overall shape.

But these are ideas specifically for the living room. In the larger type hallway, the stairway and the bedroom such methods would be less effective. In the stairway a random selection of small to medium-sized pictures placed quite high up on the stair wall enlivens an area which is otherwise hard to make eye-catching.

Below: *An unusual arrangement of different shaped frames makes an attractive backdrop on the wall at the head of the bed.* **Right:** *Why not create a stunning effect by displaying an attractive collection on a feature wall?*

Michael Boys/Susan Griggs

Syndication International

Bedrooms often tend to be the least popular places to hang pictures as they seem to jar with the usually feminine conception of the room—the visual effects of the room depending more on colourful materials, curtains and walls. But in a large bedroom a well placed print can give the room a touch of variety.

Prints are often overlooked as decorative possibilities. Shops and small galleries are springing up in increasing numbers making editions of new prints more available and less expensive. A variety of frames are offered along with the prints making them suitable for most environments.

With pictures in mind lighting is going to be a prime consideration. A painting will be totally wasted in a dark hallway passage. Even a well-lit hallway, unless it is sufficiently wide, tends to train the eye forward so that any wall ornament will often lose its effect. Reserve narrow hallways for mirrors or interesting lighting effects to give the illusion of extra space.

Kitchen decorating

One advantage of kitchen wall decorations is their low cost. For example, a wall which cannot have things standing against it and is free of cupboards and shelves can look really amazing with china plates of every size, shape and pattern stuck on it. Anything from holiday souvenir saucers and plates to colourful junk china would go well on the wall.

For the most part you will find that the kitchen decorates itself and that the principal decorative components are the kitchen utensils themselves. In a kitchen where space is at a premium think about displaying the utensils for a pleasing as well as functional effect rather than fighting to fit in non-essential decorations.

Use, for example, a section of wooden fence trellis-work hung on the wall as a surface for attaching wooden spoons, knives, ladels, chopping boards and other equipment. Attach string or wire loops to the utensils and cup hooks or even meat hooks to the trellis. When the surface is well bundled with kitchen tools the effect is that of an interesting collage. You might find it easier and neater to create the same effect with a piece of pinboard (smooth hardboard punctuated with a regular series of small holes) using pieces of wire for hooks.

Above: *A very simple display case will show even the smallest of ornaments to best advantage*

Kitchen shelving is another worthy visual possibility. Glass shelves on solid-looking metal or wooden brackets, bedecked with coloured glass bottles, vases and bowls give a pristine, modern-looking kitchen some added flair. Or, for the more traditional kitchen, pine shelving loaded with colourful tea-tins for storage purposes are very attractive.

The possibilities in the kitchen are endless and if you like to be surrounded by visual artifacts, use a spare area of wall for sticking up wine labels—a record of good times.

An ornamental trellis

Every household has a collection of odd bits and pieces that no-one wants to throw away but no-one knows quite what to do with—mementos, reminders and ephemera like old postcards. This project provides a place to keep all these, and makes an interesting feature to decorate the wall.

The basis of the project is a section of garden trellis, so it is very quick and cheap to make. You can buy the trellis in a number of standard sizes, usually 1800mm long by 300mm, 600mm, 900mm or 1200mm wide, so you can cover almost any area you have. Remember too that the trellis can be extended to a greater length than it was designed for, though this will decrease the width and close up the diamond shapes.

Trim the edges of the trellis with a batten to cover the cut ends of the strips from which it is made. You can use a softwood batten, or ramin which has a better and more durable surface. Cut it to the desired length and pin it to the trellis using short wire nails. Any nail points which project can be bent over at the back or filed off flush.

Paint or stain the trellis in a bright colour. You can use wood stain brushed on, or a spray paint. If any of the slats are rough or splintered, sand them off before painting. Trellis is often made from natural cedar, which is easy to colour. If, however, it has been treated with a coloured preservative, you will have to paint this with an undercoat to mask the original colour.

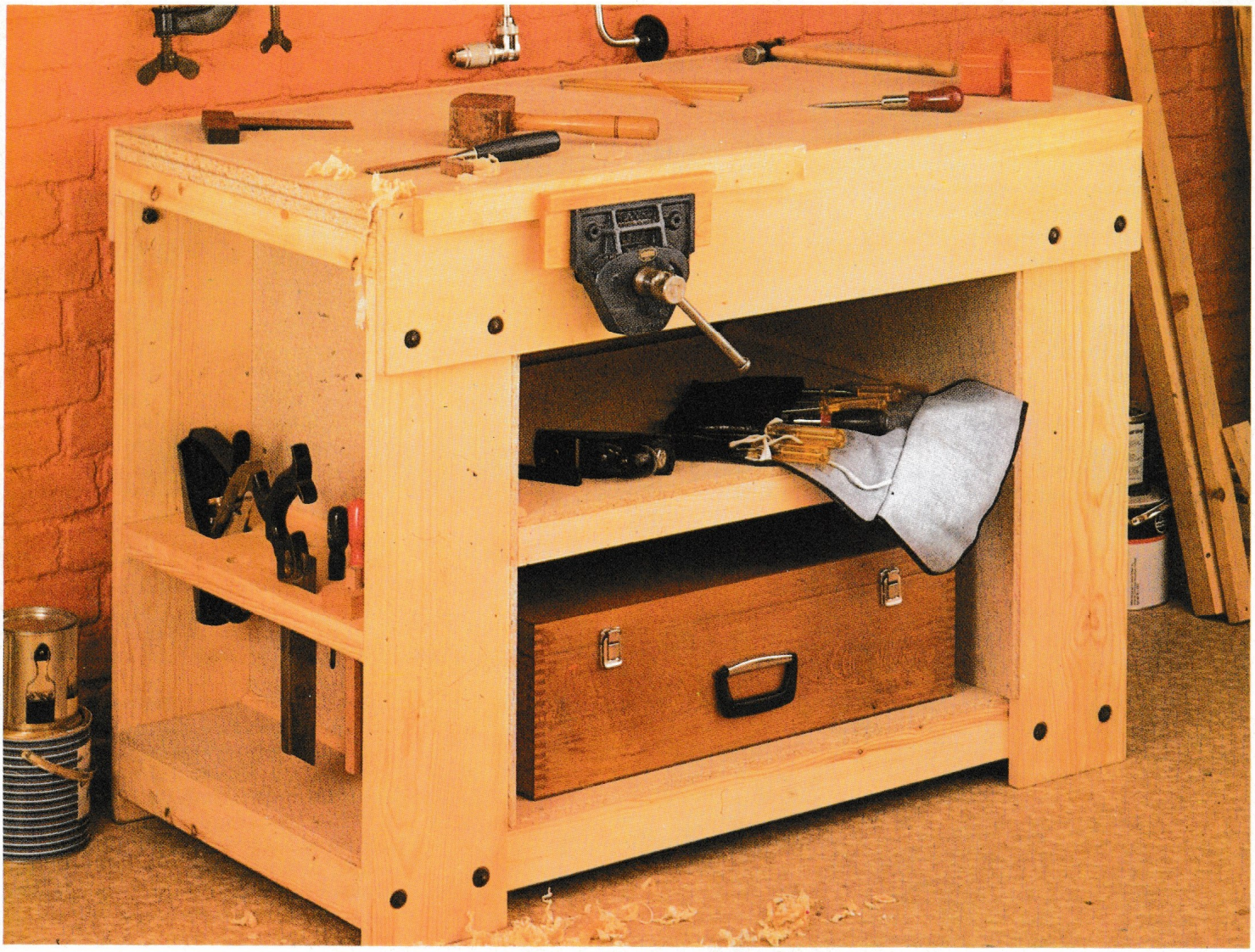
Fix the trellis to the wall by screwing through the edging battens into drilled and plugged holes. You should find that No. 8 (4.2mm) 38mm screws with plugs to match, placed at 600mm intervals along the battens, give more than adequate holding power.

There are many ways to use the trellis. Small flat items like cards, pictures or notes can simply be tucked in behind the slats. To hang larger items, use S hooks hooked over the slats. You can either buy these, or make them from lengths of stout wire. Alternatively, use small screw hooks screwed into the slats at one of the crossing points.

To add further interest and to break up the outline of the trellis, you can use trailing plants. Grow them in floor-standing pots, and train them to grow up the trellis, in and out of the slats.

Project

Build your own workbench



Jerry Tubby

Building this sturdy workbench is one DIY project that will really pay for itself. It is simple and cheap to make, and can be adapted to suit different types of work

Above: *A good workbench is the first essential when you are planning a properly organized workshop. This design fits into a small area and helps you keep your tools tidy and to hand when you want them*

Before long, anyone who is keen on do-it-yourself finds the need for a bench which will provide a sturdy work surface, hold a piece of work rigidly and keep tools tidy and to hand. This design should satisfy all these needs and provide the basis for a well equipped home workshop.

The design has two basic advantages. It is simply constructed so that you do not need a workbench in order to build it, and in its simpler form is cheap to make. However, the design allows for a number of options which you can include either to make the bench more convenient, or to adapt it to different needs, such as metalworking or mechanics.

The construction is based on two rigid end supports, which also provide storage space. These are held together by a centre shelf and a base platform, which give more space for keeping tools and materials. The top, which is rigidly framed, is made of two thicknesses of chipboard. This provides a tough working surface, and if in time it becomes badly scarred, it is easy to unscrew the top board and turn it to expose a new surface. An optional tool well is provided at the back of this top.

A tough woodworking vice is incorporated in the front fascia, and you can fit additional support blocks to help in holding large pieces. Bench holdfasts are a useful addition, making it easy to clamp down large pieces of work in the centre of the work surface where it is hard to use G-cramps.

Storage for tools is included on the end shelf, which can be turned into a cupboard by adding a door. If you need even more space, simple drawers fit under the worktop.

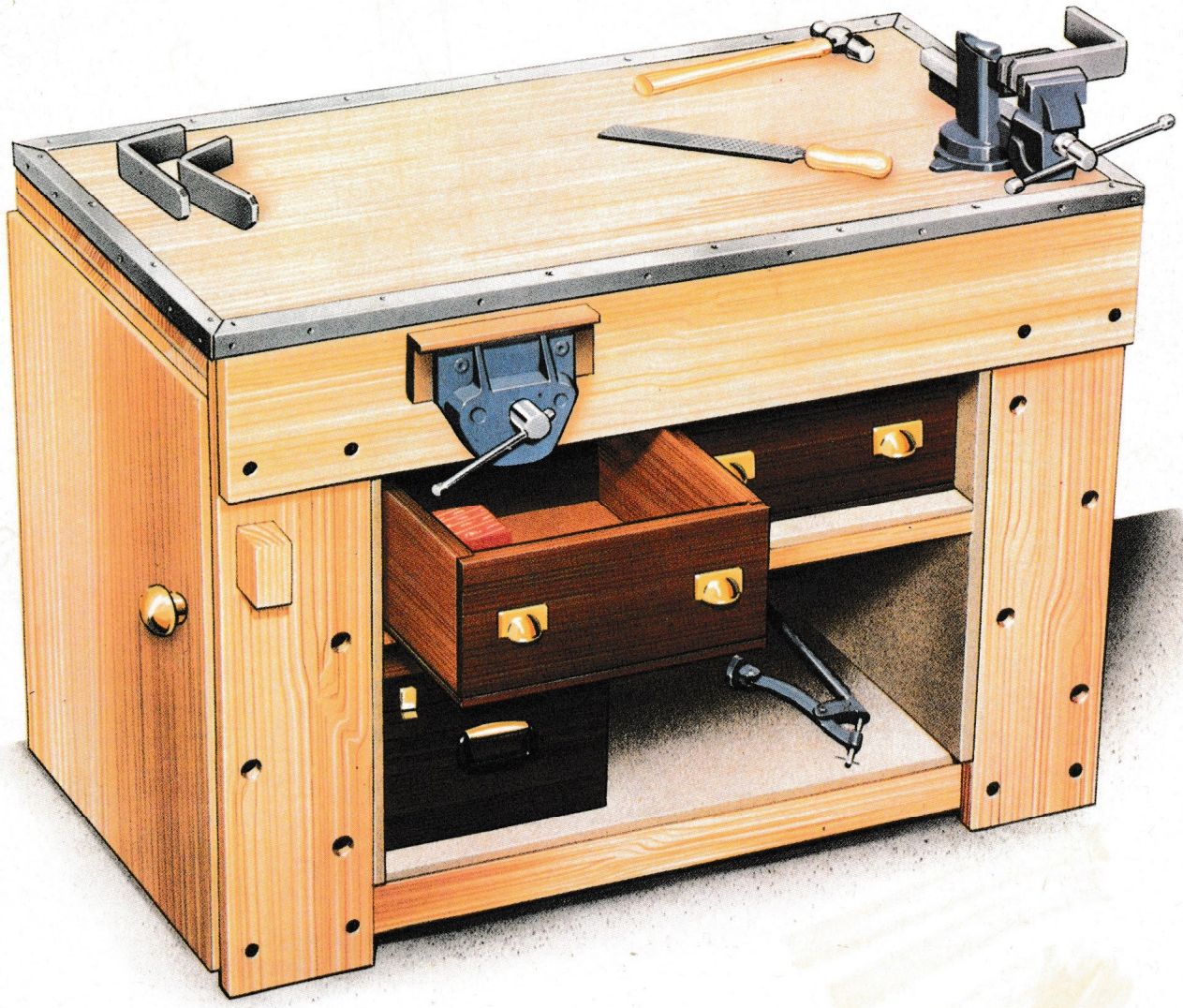
Modifications for metalwork

Add a new top, and you can use the same bench for metalwork or do-it-yourself car maintenance.

The new top is made from blockboard edged with a metal strip. This gives a rugged surface and protects the woodworking top from damage or contamination with grease. It hinges from the back, and as lift-off hinges are used, can be removed completely if required.

Metalworking needs a metalwork vice. The engineer's vice shown is very suitable for the purpose as it has a simple fixing and is easy to remove when changing over the tops. It can also be swivelled to allow you to work over the end or the side. When not in use, it can be stored under the bench out of the way so that you have a clear, unobstructed working surface.

The bench shown in this picture includes other optional extras. Also shown are the adjustable support blocks, fitted drawers and enclosed storage cupboard. These are not limited to a metalworking bench, but will find favour with any do-it-yourselfer.



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Workplan

Start by making the two end frames. You should mark and cut holes in the tool shelf before assembly. Note that the height of the worktop can be adjusted by shortening the length of the frames.

Now make up the top, shelf and base platform. While it is best to set the base platform on the floor, this is not possible unless your floor is quite level, so you may have to set it higher. Cut the housing for the vice backplate.

Assemble the top and base with the end frames, then add the fascia, shelf and vice.

Cutting list: Basic model

Legs: 4 No. 802mm (optional) x 200mm x 25mm PAR softwood

Tool shelves: 2 No. 572mm x 200mm x 25mm PAR softwood

Tool shelf support: 2 No. 558mm x 25mm x 19mm parting bead

Quadrant supports: 2 No. 558mm x 19mm x 19mm softwood

Carcase panels: 2 No. 765mm x 600mm x 12mm chipboard

Top frame: Sides, 2 No. 1178mm x 50mm x 25mm PAR softwood; Ends, 2 No. 600mm x 50mm x 25mm PAR softwood; Centre brace, 1 No. 558mm x 50mm x 25mm PAR softwood

Worktop: 1 No. 1220mm x 475mm (if tool well is fitted) x 19mm high density chipboard; Worktop base, 1 No. 1220mm x 600mm x 19mm high density chipboard

Tool well stop: 2 No. 125mm x 75mm x 25mm PAR softwood

Fascia: 1 No. 1220mm x 200mm x 25mm PAR softwood

Back Fascia: 1 No. 1220mm x 150mm x 25mm PAR softwood

Centre shelf: 1 No. 828mm x 600mm x 12mm high density chipboard

Centre shelf frame: Sides and upstand, 3 No. 828mm x 50mm x 25mm PAR softwood; Ends and centre, 3 No. 558mm x 50mm x 25mm PAR softwood; Quadrant, 2 No. 579mm x 19mm x 19mm softwood moulding

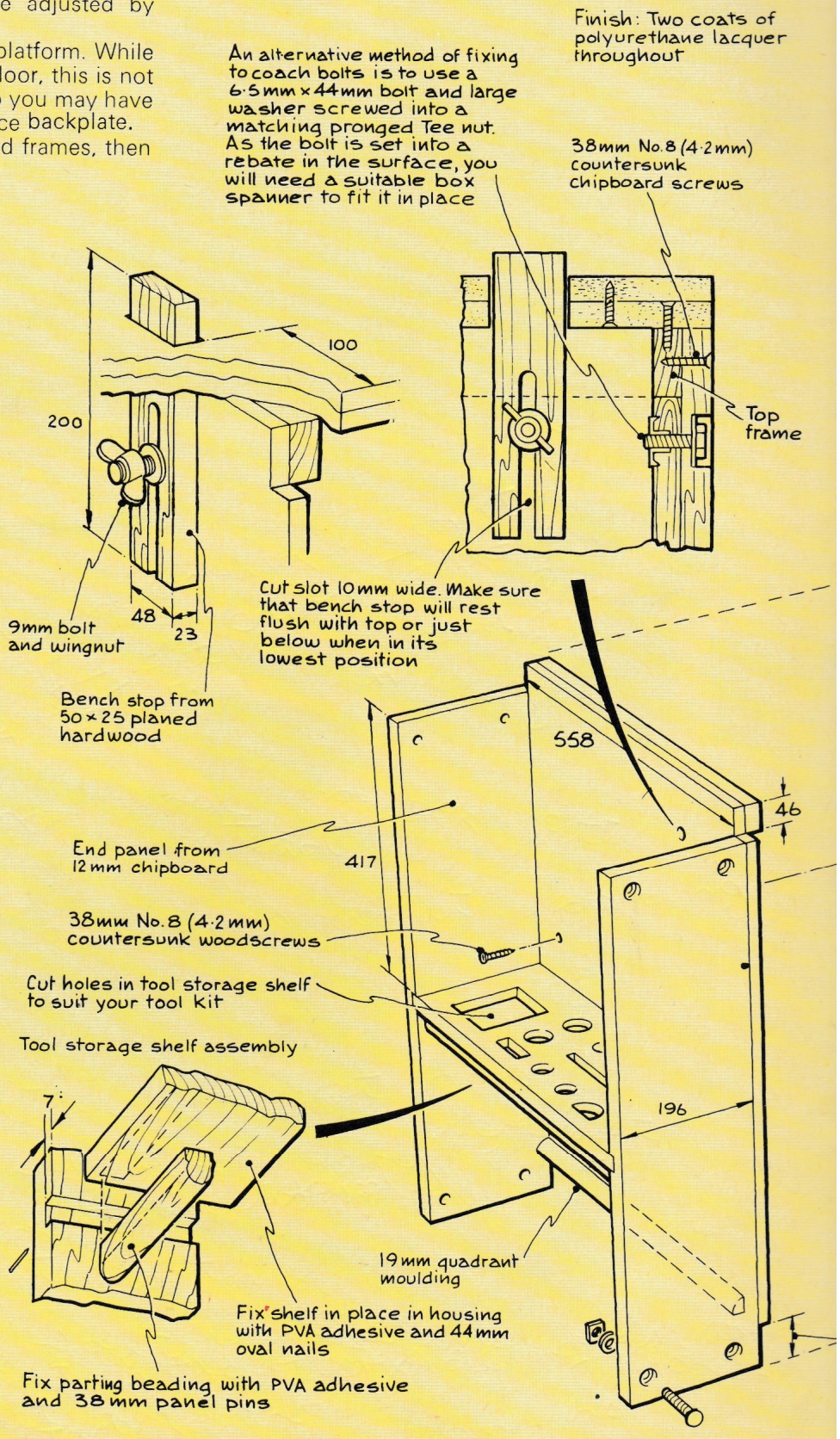
Base platform: 1 No. 1220mm x 558mm x 12mm high density chipboard

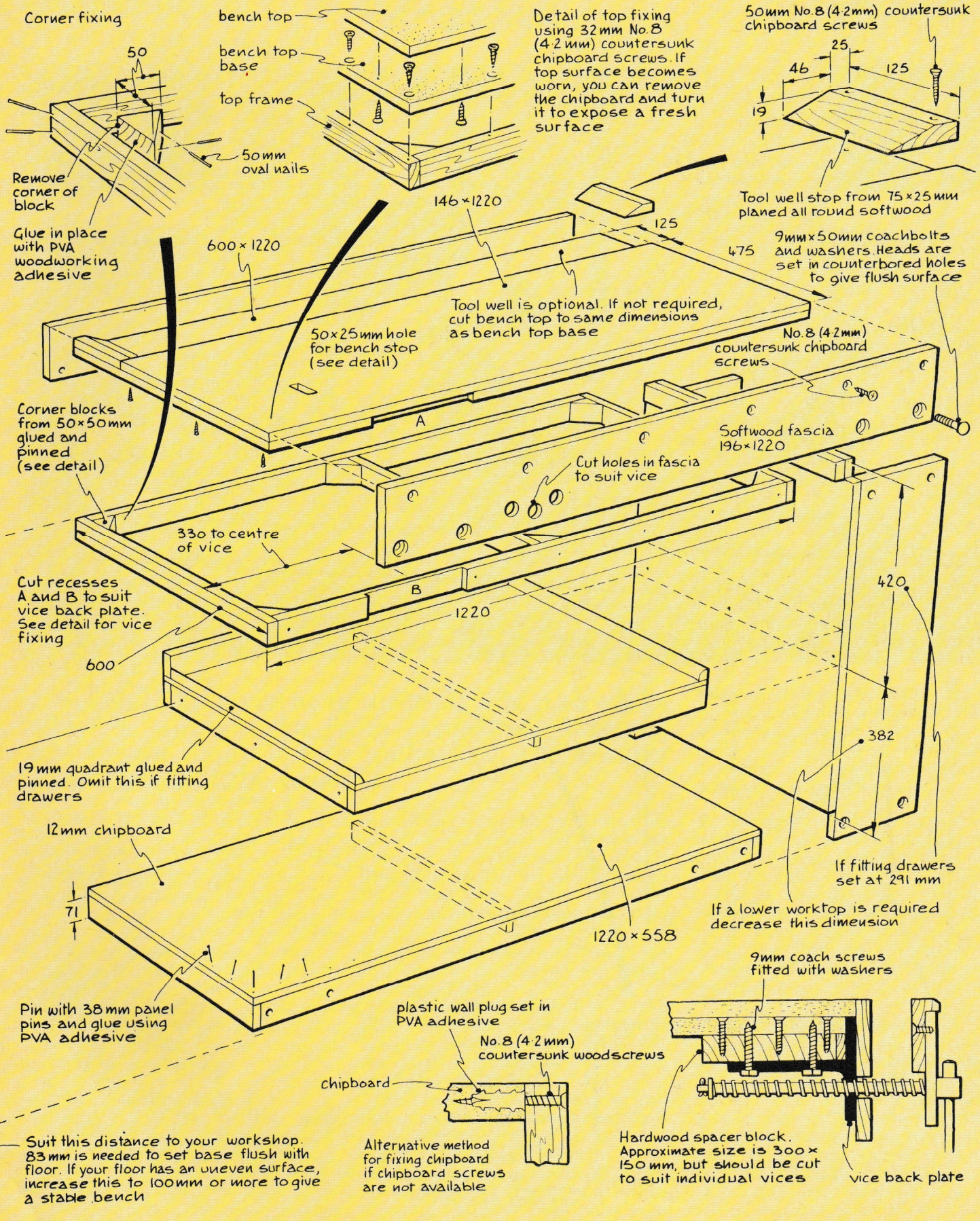
Base frame: Sides, 2 No. 1178mm x 75mm x 25mm PAR softwood; Ends, 2 No. 558mm x 75mm x 25mm PAR softwood; Centre, 516mm x 75mm x 25mm PAR softwood

Corner blocks: 18 No. 43mm x 50mm x 50mm PAR softwood

Benchstop: 1 No. 200mm x 50mm x 25mm hardwood

Basic woodworking bench


Finish: Two coats of polyurethane lacquer throughout
An alternative method of fixing to coach bolts is to use a 6·5mm x 44mm bolt and large washer screwed into a matching pronged Tee nut. As the bolt is set into a rebate in the surface, you will need a suitable box spanner to fit it in place
38mm No.8 (4·2mm) countersunk chipboard screws
100
200
Top frame
9mm bolt and wingnut
48
23
Cut slot 10mm wide. Make sure that bench stop will rest flush with top or just below when in its lowest position
Bench stop from 50 x 25 planed hardwood
558
46
End panel from 12mm chipboard
417
38mm No.8 (4·2mm) countersunk woodscrews
Cut holes in tool storage shelf to suit your tool kit
Tool storage shelf assembly
7°
196
19mm quadrant moulding
Fix shelf in place in housing with PVA adhesive and 44mm oval nails
Fix parting beading with PVA adhesive and 38mm panel pins


Corner fixing
50
Remove corner of block
Glue in place with PVA woodworking adhesive
50mm oval nails
bench top
bench top base
top frame
Detail of top fixing using 32mm No.8 (4·2mm) countersunk chipboard screws. If top surface becomes worn, you can remove the chipboard and turn it to expose a fresh surface
50mm No.8 (4·2mm) countersunk chipboard screws
25
46
125
19
Tool well stop from 75×25mm planed all round softwood
146×1220
125
475
600×1220
9mm×50mm coachbolts and washers. Heads are set in counterbored holes to give flush surface
Tool well is optional. If not required, cut bench top to same dimensions as bench top base
50×25mm hole for bench stop (see detail)
No.8 (4·2mm) countersunk chipboard screws
Corner blocks from 50×50mm glued and pinned (see detail)
A
Softwood fascia 196×1220
Cut holes in fascia to suit vice
330 to centre of vice
B
Cut recesses A and B to suit vice back plate. See detail for vice fixing
1220
420
600
382
19mm quadrant glued and pinned. Omit this if fitting drawers
12mm chipboard
If fitting drawers set at 291 mm
If a lower worktop is required decrease this dimension
71
1220×558
9mm coach screws fitted with washers
Pin with 38mm panel pins and glue using PVA adhesive
plastic wall plug set in PVA adhesive
No.8 (4·2mm) countersunk woodscrews
chipboard
Suit this distance to your workshop. 83mm is needed to set base flush with floor. If your floor has an uneven surface, increase this to 100mm or more to give a stable bench
Alternative method for fixing chipboard if chipboard screws are not available
Hardwood spacer block. Approximate size is 300×150mm, but should be cut to suit individual vices
Vice back plate

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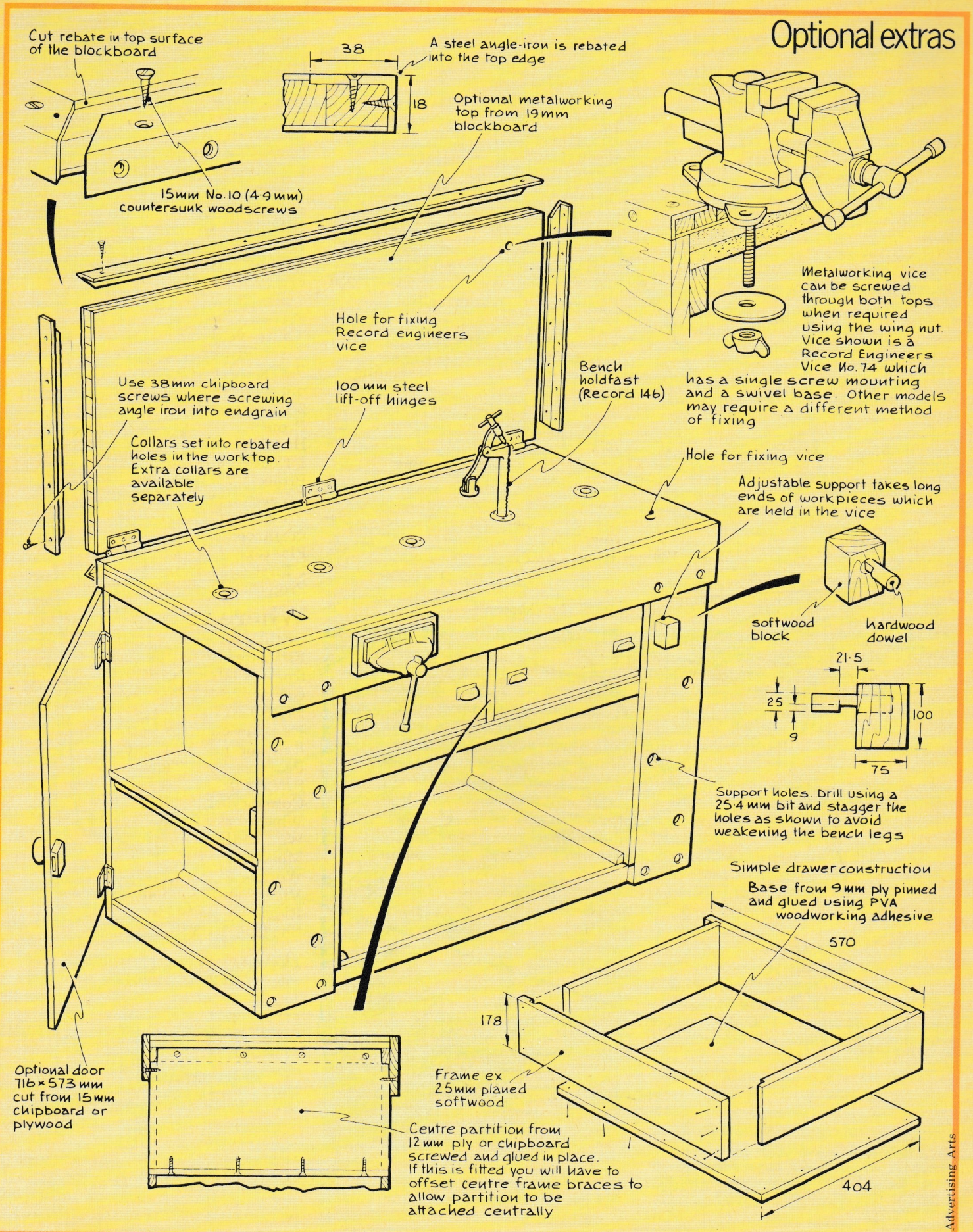
Optional extras
Cut rebate in top surface of the blockboard
38
A steel angle-iron is rebated into the top edge
18
Optional metalworking top from 19mm blockboard
15mm No.10 (4·9mm) countersunk woodscrews
Hole for fixing Record engineers vice
Metalworking vice can be screwed through both tops when required using the wing nut. Vice shown is a Record Engineers Vice No.74 which has a single screw mounting and a swivel base. Other models may require a different method of fixing
Use 38mm chipboard screws where screwing angle iron into endgrain
100 mm steel lift-off hinges
Bench holdfast (Record 146)
Collars set into rebated holes in the worktop. Extra collars are available separately
Hole for fixing vice
Adjustable support takes long ends of workpieces which are held in the vice
softwood block
hardwood dowel
21·5
25
9
100
75
Support holes. Drill using a 25·4 mm bit and stagger the holes as shown to avoid weakening the bench legs
Simple drawer construction
Base from 9mm ply pinned and glued using PVA woodworking adhesive
570
178
Frame ex 25mm planed softwood
404
Optional door 716×573 mm cut from 15mm chipboard or plywood
Centre partition from 12mm ply or chipboard screwed and glued in place. If this is fitted you will have to offset centre frame braces to allow partition to be attached centrally

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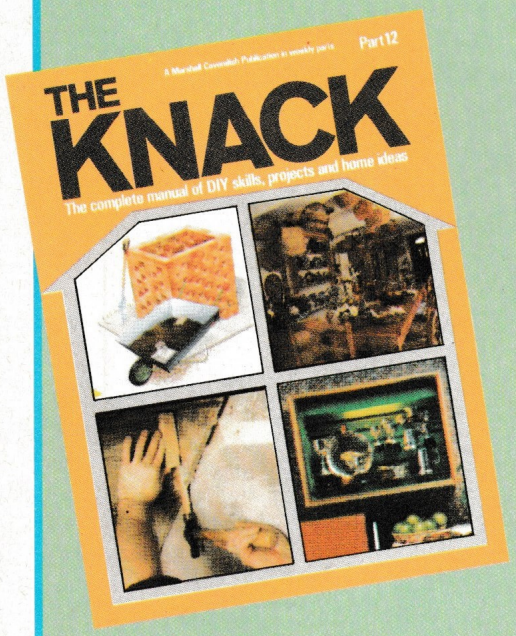
A Marshall Cavendish Publication in weekly parts
Part 12
THE KNACK
The complete manual of DIY skills, projects and home ideas

Creative ceilings: Though ceilings are often neglected, they offer all sorts of decorative possibilities. Among the points covered is how to deal with high ceilings and we also include plans for a mobile

A garden incinerator: Ideal for getting rid of garden debris, our featured project makes full use of the masonry skills covered so far

Stair problems solved: We show you step-by-step how to eliminate those annoying creaks and groans that seem to occur in every old wooden staircase

Draughtproofing: Draughts are yet another big cause of heat-loss in the home. We show some of the simple yet effective ways of excluding them and help cut fuel costs still further

Wall fixings: Selecting the right wall fixing for a particular job can be a daunting task. We offer some useful advice and show how to make a wall-mounted display cabinet for ornaments or trophies

Where to buy it—UK

Dealing with damp Pages 289-293
Estimates and further information from: Rentokil Ltd., Rentokil House, Garland Rd., East Grinstead, Sussex RH19 1DY
Hanging curtains Pages 294-299
Rail and runner products from: Swish Products Ltd., Tamworth, Staffs; S. Leboff (Robel) Ltd., Hyde House, Colindale, London NW9
What to put on the wall Pages 306-311
Wall trellis from: Hurn Brothers Ltd., Melksham, Wilts and all good garden
Workbench Pages 312-316
Vices and holdfasts from: Record Ridgeway tools Ltd., Parkway Works, Sheffield S9 3BL

Acknowledgements

Pages 289-293: Rentokil Ltd.
Pages 294-299: Fabrics and wallcoverings by: A. Sanderson & Sons Co. Ltd., 52 Berners St., London W1
Pages 312-316: Record Ridgeway Tools

Australia

Above-ground drainage Pages 300-305: Australian drainage systems do not correspond exactly with those in the UK and often make use of drainage methods employed in the USA. Regulations vary from state to state and all work must be left to licensed operators

A wall-mounted tool rack

If your tools are tidy and to hand, you will find work much easier and get better results. This tool rack is an ideal complement to a work bench in a fitted workshop, and can easily be built for very little cost.

All you need is a board to fit on the wall over the bench. Hardboard is suitable, but perforated hardboard will make fitting the tools even easier.

Mount the board on the wall using domed-head screws and wall plugs. Fit rubber washers—tap washers are ideal—between the board and the wall to leave about 5mm space. This allows you to fit S hooks or swan-necked bolts through the perforations or holes drilled for the purpose. You can hang tools like saws and hammers from them. Fit pipe clips to take the handles of tools like screwdrivers and chisels. Space the tools out in a convenient layout. You will find it much easier to keep tools in order if you paint their outlines on the board so you can see at a glance what is missing.

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